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Approximately 27% of all graduating high school seniors are prospective first-generation college students. First-generation college students are defined as those whose parents have no formal education beyond high school. Unfortunately, most of the research to date on this group has focused on these students once they arrive at college. Because not all prospective first-generation students complete, or even begin, college, vital information is lacking about this group of students.

The main purpose of this study was to investigate the college-going beliefs of middle school students who would be the first in their families to attend college as compared to their peers. Specifically, Social Cognitive Career Theory (SCCT; Lent, Brown, & Hackett, 1994) was applied to help explain the college-related barriers, social supports, self-efficacy beliefs, and outcome expectations of prospective first-generation college students and their peers. In addition, background variables such as gender, ethnicity, and parent educational level, which are believed to affect the learning experiences upon which self-efficacy and outcome beliefs are formed, were examined as well. In this study, each of these constructs was examined through the use of an extensive written assessment.

The participants in this study were 7th grade students ($\underline{n} = 272$) from four middle schools in a single southeastern state. Of these participants, 105 were prospective first-generation college students. As proposed in the hypotheses for this study, factorial

ANOVAs helped demonstrate differences in perceived barriers, parent support, self-efficacy beliefs, and positive outcome expectations between first-generation students and their peers. Path analyses for the full sample as well as separated by first-generation status indicated partial support for SCCT. The influence of background variables, barriers, and supports on strength of college-going intentions differed for prospective first-generation college students as compared to their peers. Evidence was provided to suggest that barriers and supports may have a direct effect on outcome beliefs in addition to self-efficacy beliefs for both groups of participants, although in different ways.

Suggestions for how to apply this information to the counseling profession as well as directions for future research are discussed. This study emphasized the many differences between first-generation students and their peers and highlighted the need for early interventions with this population.

COLLEGE-GOING BELIEFS OF PROSPECTIVE FIRST-GENERATION COLLEGE
STUDENTS: PERCEIVED BARRIERS, SOCIAL SUPPORTS,
SELF-EFFICACY, AND OUTCOME EXPECTATIONS

By

Melinda M. Gibbons

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Approved by

Committee Chair

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APPROVAL PAGE

This dissertation has been approved by the following committee of the
Faculty of The Graduate School at The University of North Carolina at Greensboro.

Committee Chair _____

Committee Members _____

Date of Acceptance by Committee

Date of Final Oral Examination

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CHAPTER I

INTRODUCTION

More and more, students are planning to continue their education beyond high school. Researchers (e.g., National Center for Education Statistics, 2001; Venezia, Kirst, & Antonio, 2003) consistently have found that the vast majority of middle and high school students intend to enter into some type of post-secondary education after high school graduation. This desire comes at least partially from national initiatives and information suggesting that post-secondary training is essential in today's workforce. Labor market trends indicate a shift from the need for unskilled workers to that of skilled technologists (Lehman, 1996), while U. S. Census (2000) data confirm the dramatic increase in salary for those with a college education.

The connection between intentions and actual attendance, nevertheless completion, however, does not occur for many students. Although most students plan to continue their education, the national average of students continuing directly to any type of college for 2000 was 56.7% (National Information Center for Higher Education Policymaking and Analysis, 2002), and, of those attending, only 34% actually complete a degree program (Parthenon Group, 2004). College-persistence rates for certain subgroups of the high school population are even lower. In a longitudinal study of eighth graders, results indicated 76% of students from high income families earned an associate's degree or higher, while only 19% of those from low income families earned a degree (Parthenon

Group, 2004). In the same study, degree attainment differences also were found along racial lines, with Caucasian students being twice as likely to earn a degree than African American or Hispanic/Latino students. In short, although most students intend both to enroll in and complete college, it is clear that many do not achieve these goals.

First-Generation College Students

Increasingly, students who are the first in their families to attend college, commonly known as first-generation college students, have been receiving the attention of researchers and practitioners. Researchers (e.g., Inman & Mayes, 1999; Nunez & Cuccaro-Alamin, 1998; Terenzini, Springer, Yaeger, Pascarella, & Nora, 1996) have found that this group contains more minorities, are more likely to be from lower-income families, and have lower academic achievement than their peers whose parents have some experience in college. According to one recent report (Horn & Nunez, 2000), slightly more than one-quarter of 1992 high school graduates were first-generation students, and 43% of all students (including non-traditional aged students) entering post-secondary education were first-generation (Nunez & Cuccaro-Alamin, 1998).

In addition to demographic differences, this group of students appears to be distinct from their peers in other areas relevant to educational attainment as well. They tend to perceive less family support for attending college (York-Anderson & Bowman, 1991), are less likely to take college preparatory coursework (Horn & Nunez, 2000), and are more likely to have lower grade point averages during their first year of college (Warburton, Bugarin, Nunez, & Carroll, 2001) than students with college-educated parents. Additionally, first-generation students have higher attrition rates once they arrive

at college than do their peers (Nunez & Cuccaro-Alamin, 1998). Researchers (Horn & Nunez, 2000; Terenzini et al., 1996) found these differences even when controlling for family income, academic preparation, and ethnicity, suggesting that first-generation status is a unique contributor to differences in college preparation, attendance, and persistence.

Clearly, this population needs assistance in order to succeed at the college level. Unfortunately, most of the research to date on this group has focused on these students once they arrive at college. It seems imperative to investigate factors that influence decision-making long before they arrive at college – or decide not to attend. In fact, students begin making critical educational planning decisions as early as middle school. In addition, most successful college-preparatory programs begin no later than seventh grade (Tierney, Colyar, & Corwin, 2003). Thus, the critical need to study middle school students who would be the first in their families to attend college is clear.

Social Cognitive Career Theory with Middle School

Social Cognitive Career Theory (SCCT, Lent, Brown, & Hackett, 1994) is particularly relevant to an examination of middle school students who would be the first in their family to attend college. SCCT was developed to explain “processes through which (a) academic and career interests develop, (b) interests, in concert with other variables, promote career-relevant choices, and (c) people attain varying levels of performance and persistence in their educational and career pursuits” (Lent & Brown, 1996, p. 11). SCCT is composed of three major constructs that interact with each other to affect career and educational intentions and actions. These constructs, *self-efficacy*,

outcome expectations, and *goals*, also are directly and indirectly affected by background and proximal influences, along with genetic predispositions and learning experiences (Lent et al., 1994). This theoretical approach has been found to explain the career and educational experiences of a variety of populations, including college students (e.g., Lent, Brown, Schmidt, Brenner, Lyons, & Triestman, 2003), minority students (Flores & O'Brien, 2002), international students (Lent, Brown, Nota, & Soresi, 2003), and battered women (Chronister & McWhirter, 2003).

Researchers (e.g., Fouad & Smith, 2003; Turner, Alliman-Brissett, Lapan, Udipi, & Ergun, 2003; Turner & Lapan, 2002) recently have begun to examine the fit of SCCT with middle school students and found that the data do support the SCCT model. In the first study to test SCCT specifically with middle school students, Fouad and Smith (1996) assessed math and science related self-efficacy, outcome expectations, and interests of 380 seventh and eighth graders. In place of career-choice goals, they substituted the more developmentally appropriate construct of choice intentions. The authors found that the SCCT model fit well in explaining how self-efficacy beliefs were related to outcome expectations, interests, and intentions. Importantly, the model worked with both males and females, and with Hispanic/Latino, African American, and Caucasian students. For the purposes of this study, Fouad and Smith (1996) developed the Middle School Self-Efficacy Scale, which assessed career decision-making self-efficacy and outcome expectations, math and science self-efficacy and outcome expectations, intentions, and goals. Turner et al. (2003) also developed an SCCT-related assessment specifically for middle school students. In order to assess the perceived supports (a contextual influence)

for middle schoolers, the authors created the Career-Related Parent Support Scale (CRPSS). This important addition to the SCCT literature measures instrumental assistance, modeling, verbal encouragement, and emotional support provided by parents related to career and educational pursuits. Initial results provide evidence of reliability and validity for this instrument. Finally, Turner and Lapan (2002) studied career-related perceived parent support, self-efficacy, gender stereotyping, and interests of middle school students. Although the focus of their study was on the use of Holland occupational categories, the theoretical context of the SCCT model was the basis for this study. The authors found that the constructs studied did predict career interests for all types of careers and that perceived parent support directly affected self-efficacy beliefs. The results of these studies indicate that SCCT is useful in studying career and academic development of middle school students. Research on this population, however, is fragmented and undeveloped.

SCCT is directly applicable to first-generation students in that it links academic and career pursuits while taking into consideration variables such as background and contextual influences on these pursuits. Social and economic factors, personal perceptions, and belief systems, critical issues for first-generation students, are all accounted for within the SCCT model (Lent et al., 1994). Researchers have identified differences between first-generation students and other college students in each of these areas. By identifying first-generation status as a background affordance, the framework of SCCT makes it possible to research differences in perceived supports and barriers, college-going self-efficacy beliefs, and outcome expectations about college-going, and

how each of these directly or indirectly affect educational and career intentions in middle school students.

Purpose of the Study

The purpose of this study was twofold. The first purpose was to add to the current research on first-generation students by focusing on them *before* they made decisions about their high school course of study. Most of the current research on first-generation students has been either descriptive or retrospective in nature, so this research was one of the first to provide a proactive approach by examining the unique characteristics of these students long before they reach the college level. This is vital because research has shown the need to begin career and college exploration activities at an early age. Whiston, Sexton, and Lasoff (1998) completed a meta-analysis of 47 studies involving career interventions and found that these programs were most effective with middle school students. Osterreich (2000) also found that college preparatory programs for low-income, minority youth, many of whom are first-generation students, are most valuable if they begin no later than seventh grade and continue throughout high school. Regardless of these facts, it has been reported that many college and career development programs are geared toward short-term solutions and start with high school students close to graduation (Tierney & Hagedorn, 2002). The results of this study helped identify specific perceived supports and barriers, along with college-related self efficacy, that first-generation students have at the time in their development when it is critical to begin career and college interventions. This is necessary for later long-term college success.

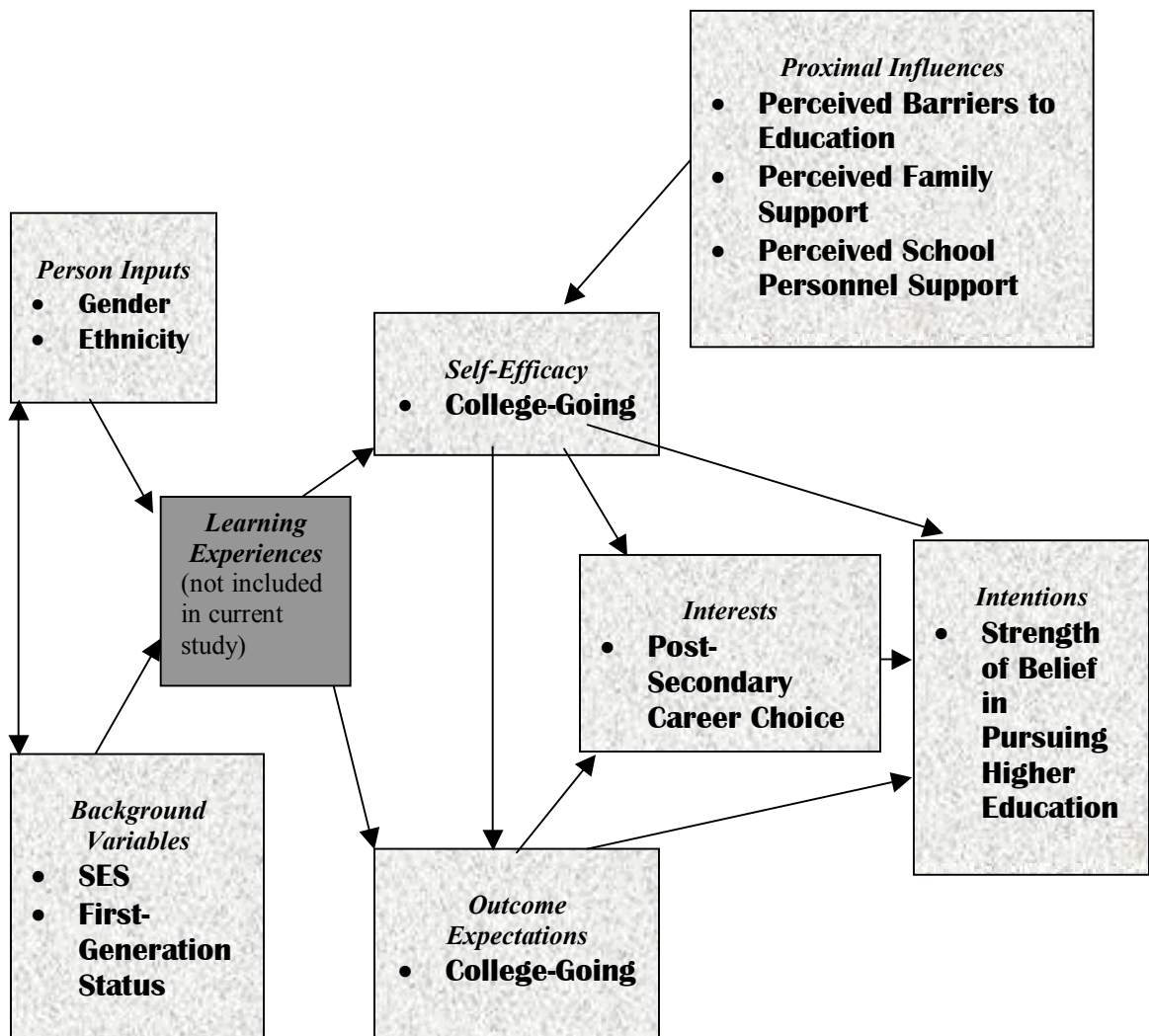
Secondly, this study added to the literature on SCCT by applying this model to middle school students and adding the background affordance of first-generation status. Although researchers (e.g., Nunez & Cuccaro-Alamin, 1998; Warburton, Bugarin, Nunez, & Carroll, 2001) have found differences between first-generation students even when controlling for other demographic and academic variables, first-generation status has not been considered as a background variable in the SCCT model. Since SCCT is meant to describe career and educational development over time, it makes sense to begin early in this development process by focusing on younger school-aged children. Ultimately, it was hoped that this model would be a good fit with this group and be useful as a way to identify the unique needs of this group of students. The results of this study informed both research and practice by providing needed information about college-related perceptions of middle school students at a time when they are just beginning to make academic and career-related decisions that will affect their high school years and beyond.

Statement of the Problem

Little research has been conducted to date that goes beyond descriptive characteristics of first-generation students prior to their arrival to college. Based on the research cited above, it appears that academic and social decisions made in high school (e.g., what courses to take, gathering information about college, involving parents in career-related discussions) dramatically impact success at the college-level for first-generation students. Additionally, since taking rigorous coursework in high school by itself is not enough to even the odds (Horn & Nunez, 2000), it seemed important to assess

for other differences in these students and to create programs that address these other issues as well. Using the SCCT model of career development, college-going beliefs of first-generation students as compared to their peers were studied. Figure 1 illustrates the relationship of the constructs researched in this study.

Figure 1. Depiction of the SCCT model with Constructs to be Examined in this Study (Adapted from Lent, Brown, & Hackett, 1994).



Therefore, the following research questions were explored in this study:

1. Is there a statistically significant mean difference in the scores for levels of perceived barriers to postsecondary education pursuits for first-generation students as compared to non-first-generation students? It was hypothesized that first-generation students would perceive more barriers related to college-going.
 - a. What are the specific types of barriers that first-generation students are more prone to than are their peers?
2. Is there a statistically significant mean difference in scores for levels of perceived family and school supports to postsecondary education pursuits reported by first-generation students as compared to non-first-generation students? It was hypothesized that first-generation students would perceive less family and school support for college-going.
3. Is there a statistically significant mean difference in scores of college-going self-efficacy reported by first-generation students as compared to non-first-generation students? It was hypothesized that first-generation students would have lower college-going self-efficacy.
4. Is there a statistically significant mean difference in the scores of college-going outcome expectations reported by first-generation students as compared to non-first-generation students? It was hypothesized that first-generation students would have lower college-going outcome expectations.
5. Does the SCCT model provide a good fit for both first-generation and non-first-generation students? It was hypothesized that the SCCT model would be a good

fit for both groups of students, but the strength of the correlations between variables will differ. For first-generation students, perceived barriers would be a stronger influence on self-efficacy beliefs and parental support would be a weaker influence on self-efficacy beliefs. Coping efficacy for first-generation students would be more weakly influenced by self-efficacy beliefs.

Need for the Study

Students whose parents lack postsecondary education are less likely to continue their education beyond high school and, if they do, are less likely to complete college and receive a degree. Most of what we know about this population is based on reports of these students once they arrive at college. The lower educational expectations of first-generation students who eventually choose not to continue their education are evident, however, as early as eighth grade (Hossler, Schmit, & Vesper, 1999). In order to increase the likelihood of college-going, schools need to begin college-preparatory programs in middle school or early high school. Components of successful college-preparatory programs include not only academic planning and engagement, but also family involvement, career and college counseling, emphasis on culture, and peer support (Tierney, Colyar, & Corwin, 2003). In order to include these aspects, research needs to be conducted to assess the perceptions of first-generation students long before their arrival at college. Finally, a theoretically sound approach to identifying how these perceptions affect college-going intentions must guide the research and practice.

This study included many of the pieces described above. It was intended to measure the perceptions of prospective first-generation students just prior to the high school

registration process. Surveying students before it becomes time to make long-term educational decisions is important. The results included what types of barriers first-generation students perceived related to their educational pursuits as compared to their peers. In addition, levels of perceived school and parent support were identified as well. The relationship of these perceptions to college-going self-efficacy, outcome expectations, and strength of intentions also were included. Practitioners can use this information to create programs that address perceived barriers and increase knowledge and understanding of the post-secondary experience. Parents and community members can begin to understand how their involvement shapes the career and college intentions of middle school students. In addition, researchers can add this new information to the growing literature on first-generation students.

In this study, SCCT was utilized as a framework for how perceived supports and barriers affect college-related self-efficacy, outcome expectations, and intentions. First-generation status was included as a background contextual variable that directly and indirectly affects each of the other constructs. By utilizing a sound theoretical approach such as SCCT as a framework for this study, the results are more readily applicable to school settings. Practitioners can use the findings when creating individual and small group counseling programs for middle and high school students. Counselors have a better understanding of what aspects of career development (e.g., self-efficacy beliefs, perceived barriers) to focus on in these programs. Additionally, researchers are able to use the results in two ways. First, SCCT was identified as an appropriate way to examine the career and academic development of first-generation students. This is

important because it provides additional support for this career theory as well as adds to the few studies that have applied SCCT to middle school students. Second, first-generation status can be added to the list of important background affordances to include in future studies. This study addressed important gaps in the literature on the career development of middle school students in general, and students who would be the first in their families to attend college in particular.

Definition of Terms

College: Any post-secondary education leading to a degree (i.e., associate's or bachelor's degree)

College-going self-efficacy: People's belief in their ability to be successful in college-related activities. In this study, college-related self-efficacy will be measured by the *College-Going Self-Efficacy Scale*, which was created specifically for this study.

First-generation student: A student for whom neither parent has more than a high school degree.

Intentions: Post-secondary and career plans. For the purposes of this study, the strength of intentions was measured by a ranking of the perceived likelihood that the student will both attend and graduate from college.

Non-first-generation student: A student for whom one or both parents has some education beyond high school, regardless of degree status.

Outcome expectations: Beliefs about the results of specific activities related to college-going. In this study, outcome expectations were measured by the *College-Going Outcome Expectations Scale*, which was created specifically for this study.

Perceived barriers: Contextual factors that people view as potential problems in achieving success in a career or educational goal (Lent et al., 2001). Specifically, perceived barriers to college-going will be assessed. In this study, perceived barriers was measured by the *My Perceptions of Barriers Scale – Revised* (based on McWhirter, 2000).

Perceived supports: Contextual factors that people view as potential aids to achieving success in a career or educational goal (Lent et al., 2001). Specifically, perceived social supports for college-going will be examined. In this study, two types of social supports were examined. Both parent support and people at school support were measured by the *Child and Adolescent Social Support Scale* (Malecki, Demaray, & Elliott, 2000).

Person inputs: Genetic or hereditary characteristics (i.e., gender, ethnicity, disability status) that directly or indirectly affect perceived supports and barriers, self-efficacy, outcome expectations, and intentions (Lent, Brown, & Hackett, 1994). In this study, self-reported gender, age, and ethnicity were used to determine person inputs.

Summary and Overview of Remaining Chapters

This study is organized into five chapters. Chapter I provides an introduction to the topic of college-going beliefs among middle school students, prospective first-generation students, and Social Cognitive Career Theory. This chapter also examines the purpose of and need for the proposed study. Chapter II contains a review of the literature on early adolescent development, first-generation college students, and empirical support for the use of SCCT in explaining career development. In addition, this chapter also includes a review of the literature on self-efficacy and perceived barriers and supports

related to college-going beliefs. Chapter III is a description of the methodology utilized in this study. It includes a description of the research questions, participants, instruments used, method for data collection, and explanation of the data analyses. Chapter IV includes the results of the study as related to the data analysis described in the previous chapter. Finally, Chapter V offers a summary of the study, a discussion of the results, and recommendations and implications for both practitioners and future researchers.

CHAPTER II

REVIEW OF THE RELATED LITERATURE

Early Adolescence Theories

Adolescence is a time of transition. Middle school students are in the midst of pubertal development which affects their peer relations, family relations, cognitive abilities, behavior, and emotions (Susman & Rogol, 2004). Descriptions of normal early (ages 12-15) adolescent development (American Academy of Child & Adolescent Psychiatry, 1997; American School Counselor Association, 2000) include the themes of movement towards independence, focus on present interests, increased interest in the opposite sex, development of ideals and focus on role models, ability for abstract thought, and experimentation. In addition, peer influence, search for identity, and greater interest in career planning are key factors of this developmental time.

Erikson (1963) described adolescence as the stage of identity versus role confusion, a time when adolescents are attempting to create a meaningful definition of who they are and how they fit within society. This is done through interactions with parents, peers, and other significant people in their lives. An important piece of the identity puzzle is discovering a vocational identity as well. In the previous stage of industry versus inferiority, the focus was on creating a sense of success through learning. Children learn to work with and begin to understand the behavior of others. Assuming this stage was successfully completed, Erikson believed that young adolescents then

would take those feelings of success in learning and apply them to establishing a meaningful concept of themselves, including their selves within the world of work. Erikson suggested that if this stage of identity development was not successfully completed, adolescents would experience a sense of role confusion which would affect their decision-making about the future as well as impact their personal relationships.

Bandura's (1986; 1997) theory of self-efficacy is a compliment to developmental theories. Bandura believed in the idea of human agency. He suggested that, from a young age, people are not merely reactive, but rather intentionally make things happen in their lives. Intentionality, or being proactive and planful in choosing a course of action, is the cornerstone of his theory. Through assessing various options, adolescents choose goals with forethought, reflection, and self-regulation. Self-efficacy, or people's belief in their ability to produce a given outcome, is the foundation of human agency. It is what creates the incentive to act on a goal and, in turn, motivates behavior. Goals in adolescence are typically related to career and educational paths. Often, the self-efficacy beliefs of adolescents are learned through modeling behavior of others. They identify with parents, teachers, and peers, and then interpret these influential adults' and friends' beliefs and actions and integrate them into their own. Behaviors are selected if they seem to be reinforced or rewarded. Then, goals are affected by these selected behaviors. This cycle helps guide the career and educational plans of early adolescents.

Finally, Piaget (1964) suggested that adolescents are beginning to develop formal operational thinking, which permits them to think abstractly. Formal operational thinking allows adolescents to analyze their decisions and create hypothetical ideas about their

future, including their educational and vocational options. Early adolescents are thought to be still developing these abilities and may be unable to be systematic in their decision-making. Although not all teenagers completely achieve formal operational thought, most eventually are able to consider if-then propositions and to identify flaws or confirmations regarding a hypothesis. This ability allows them to consider the complexities regarding their future plans.

During this time of transition, middle school students are beginning to make decisions about their lives after high school. Of relevance, Donald Super (1963) created a series of life stages related to career development. He believed that adolescents are in the stage of career exploration, where they make tentative decisions about their career plans, receive the training or education necessary to achieve those plans, and enter the world of work. Super believed that, for most people, 'worker' is a central life role that dominates how they identify themselves. In the stage of career exploration, they are learning about who they are and how their self-concept matches different vocational options (Super, Savickas, & Super, 1996). This important move from exploring interests to initial decision-making is a central theme for middle school students. The developmental models described above complement this theme. Vocational choice, and the educational plans to achieve a choice, are key factors in identity development. Modeling behaviors of influential adults as well as considering multiple educational and career opportunities are major activities that begin in the middle school years. Clearly, these activities need to be a focus of guidance and counseling during these years.

Middle School Students' Career and Educational Planning

The National Occupational Information Coordinating Committee (NOICC; 1992) developed a plan for career development programs in schools and human service agencies. Named the National Career Development Guidelines, these standards currently are used in over 40 states to create career development programs for students and adults. The guidelines are divided into three components – self-knowledge, educational and occupational experience, and career planning – with specific competencies under each area targeted for different developmental levels. Reflective of developmental theory, the competencies for middle school students represent activities supporting the decision-making process. Suggested career-related activities for this age group include creating a positive self-concept, understanding the connection between school and career, learning about skills needed to find and understand career information, using decision-making skills, and identifying life roles. These activities support the themes of providing accurate information to students about careers and helping them develop skills to integrate this information in order to make informed decisions about their future. Empirical research supports the NOICC recommendations.

In their recent article on the future aspirations of children and adolescents, Wahl and Blackhurst (2000) reviewed various studies on the educational and occupational goals of middle and high school students. Their purpose was to review the literature on these aspirations and then provide recommendations for school counselors on how to address career development needs of students. For occupational aspirations, the results clearly demonstrated that career choices are made long before high school, and that these

selections tend to be relatively stable over time. In addition, while much focus has been given to sex-typing in career choice, much less research has focused on the affect of race or culture on career development. In contrast, Wahl and Blackhurst found that many researchers have examined the effect of ethnicity on educational aspirations, but few have studied other variables that may influence educational choices. Several areas were recommended for further research, including the effect of demographic variables, such as parent education levels and family income on educational and occupational goals. In addition, the researchers suggested a study of critical times when college-going decisions are affected. Middle school was proposed by Wahl and Blackhurst as one of these potentially crucial times.

One clear trend of career and educational planning found by researchers is that middle and high school students plan to attend college and believe that a college education is important for future success. A disconnect, however, exists between aspirations and actually enrollment in college. Johnson (2000) surveyed sixth and ninth graders about their view of school as related to career planning and development. Respondents ($N = 373$) were mostly Caucasian and from middle class families. In response to questions about the need for post-secondary education, just over half believed that a bachelor's degree or above was necessary for career success. An additional 12% believed that at least some college was necessary. However, three-fourths of the students reported planning to obtain at least a four-year degree for themselves. This result indicates a separation between beliefs about needed education and individual academic aspirations. Kelpe-Kern (2000) surveyed high school students from 20 different schools

in a single district. About two-thirds of the students were African American or Hispanic/Latino and about half were from low-income families. Of these students, almost 71% indicated they planned to attend a four-year university and another 14% planned to attend a two-year university. Importantly, Kelpé-Kern reported that approximately 38% of students graduating from this district actually begin postsecondary education. Similarly, in a study of the career and college needs of ninth graders in North Carolina, Gibbons et al. (2005) found that 73% of those surveyed planned to attend a four-year college after graduation. Another 11% reported planning to attend a two-year community college after high school. The current college-going rate for the counties surveyed, however, was much lower, with only 48% going to a four-year university. Thus, although early adolescents plan to attend college, their aspirations do not always result in goal attainment.

Other researchers have examined the career and educational plans of middle school students. Eccles, Vida, and Barber (2004) used data from the Michigan Study of Adolescent Life Transitions ($N = 528$) to study the factors that influence college plans of students. This study used longitudinal data beginning in grade six and found that students from higher socioeconomic status (SES) families and those whose mothers had more education were most likely to enroll in college by age twenty. Specifically, mother's education level was the most powerful demographic variable predicting college plans for middle school students. Valuing education was the strongest overall predictor of college attendance. One important caveat to these results is that the participants were almost all

middle-class Caucasians from a single U.S. state. Nevertheless, the results suggest that parental education does influence college planning.

In a national study of eighth graders, Hafner, Ingels, Schneider, Stevenson, and Owings (1990) found that low parent education level was one of six risk factors affecting school success. Students with these risk factors were twice as likely to score in the lowest test quartile and were six times as likely to believe they would not graduate from high school. Eighth graders as a whole lacked connections between their educational goals and their programs of study. About two-thirds planned to attend a four-year college, but only about one-third planned to enroll in a college preparatory high school program. One-quarter of the eighth graders surveyed had no idea which type high school program they would enter.

In a second national study, Atanda (1999) reported that decisions made in middle school directly affect college preparation and later attendance. Specifically, students who did not enroll in higher level math and foreign language classes were less likely to apply to a four-year university. Students enrolled in algebra and a foreign language in eighth grade were most likely to attend a college after graduation. Since decisions about math levels are made in middle school, Atanda suggested that advanced planning by both students and their parents is vital to successful application to college. In addition, he believed that a direct link existed between parent expectations and taking these higher level courses.

In an earlier study on the college selection process, Matthay (1989) surveyed college freshmen about who and what they felt were important resources in their college

decision-making process. Participants were mostly Caucasian students from a variety of two- and four-year colleges. Over one-third of the students were the first in their family to attend college. Overall rankings of perceived helpfulness indicated that visiting a college, college catalogs, family, school counselors, and peers were the top five resources out of a possible 17 choices. In her conclusion, Matthay suggested that college planning should start no later than middle school and that counselors should focus on involving parents and helping students connect with college representatives.

Other researchers have recommended beginning college and career planning no later than middle school as well. Hossler, Schmit, and Vesper (1999) completed a nine-year longitudinal study of the college decision-making process and found that most students made their decisions regarding their educational future between eighth and tenth grade. They recommended that college intervention programs be focused on middle school students in order to help them make informed decisions about their future. Evaluators of effective college preparation programs (e.g., Oesterreich, 2000; Tierney, Colyar, & Corwin, 2003) also have found that successful programs start in middle school, include counseling, involve parents and peers, and provide concrete information about college. As middle school students begin to make decisions about the future and to develop a sense of their identity, schools should be providing career development opportunities that help them with this planning process. Given the important influence of parent educational level on college attendance, particular attention to middle school students who will be first-generation college students clearly is warranted.

First-Generation College Students

The study of first-generation students, or those whose parents have no education beyond high school, as a distinct population with differences from other college-bound youth is a relatively new phenomenon. Changes in today's workforce and increased need for skilled workers have made it almost mandatory for students to complete some form of postsecondary education. As the need for more education has risen, so has the need to ensure that students entering college complete their educational goals. Recently, colleges have begun examining their student attrition rates to determine if certain demographic groups have higher rates of leaving college than do others. What researchers have found is that first-generation students leave college at higher rates than students whose parents have at least some college education (Billson & Terry, 1982). As a result of these findings, researchers began studying first-generation college students separately in order to identify ways to help this group enter and complete college.

Early Studies

Early studies on first-generation students helped spotlight the need to study this group separately rather than as part of all college-going youth. The researchers often focused on exploring general demographic details or individual differences through qualitative interviews. These studies are important because they highlighted the impact of family influence on first-generation students' academic pursuits. In addition, the research paved the way for quantitative work that added depth to these initial results.

Billson and Terry (1982) began to research first-generation students because of evidence showing that these students left college more than others but no evidence

existed as to why this occurred. They were among the first to define this group as those whose parents had no education beyond high school rather than no college degree. This distinction is important because their research focused on those students whose parents had *never* been to college. This definition has since been adopted as the typical way to identify this group.

Billson and Terry (1982) surveyed and interviewed students from two different colleges to explore how family influenced the college experience. Results indicated that first-generation students were less likely to be social integrated into campus life and more likely to be integrated into the world of work. In other words, they often held jobs off-campus and identified with work rather than with academics, even though their desire to attain a college degree was equal to that of other students. Billson and Terry (1982) believed that family-of-origin beliefs played a strong role in this school-work integration conflict.

In another of the earliest studies on first-generation students, London (1989) interviewed 15 lower-income first-generation college students about their educational experiences. He was interested in how family dynamics affect the transition to college. Specifically, London wanted to explore how being the first in a family to pursue higher education affected the student's role in their family. He found that family issues such as role assignment and separation were central themes in these student's stories. These students often felt guilt about attending college, leaving the family unit, and choosing a different path from their parents, even when they chose to live at home. London noted that although some first-generation students may encounter an easy transition to college,

his interviewees consistently remarked on the difficulty of this step and the conflicts it created both within themselves and within their families. This conflict between the two worlds of college and family has been consistently cited as a contributor to attrition for first-generation college students (e.g., Bui, 2002; Hsiao, 1992; Inman & Mayes, 1999; Nunez & Cuccaro-Alamin, 1998).

A third early qualitative study (Skinner & Richardson, 1988) that provided insight into first-generation students was focused on minority college graduates. Skinner and Richardson identified four types of graduates: 1) students of college graduates who were well prepared for college and always intended to go; 2) first-generation students who believed in education but lacked adequate preparation; 3) students from both college- and non-college-educated parents who were educationally prepared but uncertain about the importance of education; and 4) first-generation students who were unprepared and never had long-term plans to attend college. Of the 107 interviewees, about 1/3 represented category one and another 1/3 represented category two. The 12% in category four were primarily non-traditional aged students who had returned to school later in life. The large percentage of first-generation students who lacked academic preparation for college concerned the researchers. Since they only interviewed those who successfully graduated, Skinner and Richardson (1988) provided suggestions to help those who might not make it through school by stressing the need for college-level -programs to assist first-generation and under-prepared students so that more will complete their degrees.

More recent studies of this population also have been focused on college-aged students, with the intent of helping lower attrition rates and helping increase success at

the college level. Most of these studies are focused either on community college students or four-year university enrollees. As described below, consistent differences have been found regarding this population as compared to other college students. Differences in college persistence and degree attainment have been found even when controlling for academic preparedness (Warburton, Bugarin, Nunez, & Carroll, 2001), socioeconomic status, college type, and full-time college attendance (Nunez & Cuccaro-Alamin, 1998), cognitive development, SES, grades, ethnicity, and gender (Pascarella, Wolniak, Pierson, & Terenzini, 2003). Thus, it seems clear that being the first in a family to go to college creates these variations. Overall, differences have been found in demographic, academic, and college-related variables.

Demographic Differences

First-generation college students differ demographically from other college students. In his study of four-year university freshman, Bui (2002) found that first-generation students were more likely to be of an ethnic minority, come from lower income families, and speak English as a second language than students of parents with at least some college education. In their national study of 1992 high school graduates, Horn and Nunez (2000) found that half of first-generation students were from low-income families as compared to less than 1/3 of students with parents who had some college education and less than 10% of those whose parents graduated from college. In comparison to children of college graduates, these first-generation students also were more likely to be Hispanic/Latino or Black. In a study of over 5,000, mostly Caucasian, community college students (Inman & Mayes, 1999), first-generation students were more

likely to be female, older, and have more financial dependents than other college students. In addition, these first-generation students were more likely to come from low-income families. Approximately 43% of incoming college students in another national study were found to be first-generation students (Nunez & Cuccaro-Alamin, 1998). Of these students, 11% of the first-generation students were Hispanic/Latino as compared to only 5% of the comparison group. Almost 25% of the first-generation students were from the lowest family income quartile versus 5% of non-first-generation students. Clearly, demographic differences exist between first-generation students and their peers.

Academic Differences

First-generation students have been found to differ both in academic preparation as well as academic achievement before and during college. Although researchers (e.g., Gibbons, Borders, Wiles, Stephan, & Davis, 2005; NCES, 2001) have found that nearly all students plan to attend a two- or four-year college, differences exist between how well prepared first-generation students are for college, which may, in turn, affect their efforts to complete a college degree.

Academic preparation refers to what courses students took during high school in anticipation of college. Researchers (Horn & Nunez, 2000) examining a national sample of high school graduates found several differences related to math courses. Only 14% of first-generation students took algebra in eighth grade, but 34% of students of college graduates did so. This difference is important because taking algebra while in middle school is considered a path to completing advanced math in high school, which is required for entrance to most four-year universities and linked to college success. The

researchers also found that first-generation students were less likely to take advanced math in high school, with only 22% of the sample doing so as compared to 61% of students of college graduates.

In a second national study of high school students, Warburton et al. (2001) reported differences in academic preparation as well. They found that 40% of first-generation students did not go beyond the basic core academic curriculum of four years of English and three years each of math, science, and social studies versus only 28% of other students. In addition, while only 9% of first-generation students took the rigorous course track that included advanced sciences, additional math, three years of foreign language, and at least one honors course, 22% of non-first-generation students completed this track. With less academic preparation, it is not surprising that differences in academic achievement at college exist as well.

Riehl (1994) surveyed four-year college students on academic and aspiration differences between first-generation students and their peers. The first-generation respondents in the sample ($N = 774$) reported lower SAT scores, high school grade point averages (GPA), and first-semester college grade point averages than did non-first-generation students. Pascarella et al. (2003) reported similar results for 144 community college students; first-generation students had lower college grades and took fewer credit hours than their counterparts. Warburton et al. (2001) also discovered that first-generation students had lower SATs and GPAs, and were more likely to have taken a remedial course in college than other college students, while Inman and Mayes (1999) found that first-generation community college students took fewer credit hours in their

first year than did other students. Academically, first-generation college students are at-risk early because of their lack of rigorous coursework, which then translates into lower academic achievement in both high school and college.

Of importance are two studies that suggest ways to improve chances for academic success in college. Ting (1998) investigated first-generation college students at a four-year university in order to identify predictors of academic progress. Through a multiple regression, he found that leadership experience and community service in high school were the best psychosocial predictors of success for first-generation students. Strage (1999) also examined college success factors for first-generation students using a series of one-way ANOVAs, and found that teacher rapport with college instructors and leadership skills were both related to academic achievement. It seems that non-academically related activities prior to arriving at college improve the chances for academic success at the college level.

Personality Differences

Researchers also have begun examining personality differences between first-generation students and their peers. Bui (2002), for example, found differences in their desire to attend college. First-generation students rated gaining respect and status, bringing honor to the family, and assisting with family finances as more important reasons for attending college than did other students. Nunez and Cuccaro-Alamin (1998) also reported family-related desires for attending college. In their study, being well-off financially and being able to give their own children better opportunities were rated as very important reasons for attending college by first-generation students. These results

suggest a tie between college and family that may not exist for non-first-generation students, but clearly is important for students who are the first in their family to attend college.

In their study specific to personality differences in first-generation students, McGregor, Mayleben, Buzzanga, Davis, and Becker (1991) found several differences. Students whose parents both attended college had higher levels of self-esteem, social acceptance, and humor, while first-generation students felt they were less creative. The two groups, however, did not differ on friendship, scholastic competence, or global self-worth. Hellman and Harbeck (1997) also found that first-generation community college students had lower academic self-efficacy than other students. It appears that although being a first-generation student influences some personality traits, important constructs such as self-worth and friendships are unaffected by this designation.

College-Related Differences

Several researchers have examined differences in reasons for selecting and attending a college, and college-related perceptions and knowledge in first-generation students. Overall, first-generation students have lower educational aspirations than other students, even though most want to attend college of some type (Riehl, 1994). This may contribute to the differences found related to college choice, preparation, and perceptions.

York-Anderson and Bowman (1991) surveyed 195 traditional-aged college freshmen and found that the 58 who were first-generation students perceived less parental support for attending college than did other students. They did not differ, however, from others on general college knowledge or commitment to college. Horn and Nunez (2000)

also found differences related to parent involvement, with first-generation students as early as eighth grade reporting less encouragement to take advanced math courses. In addition, these students reported being less likely to choose their program of study with their parents, yet were no more likely to receive assistance from a teacher or counselor. Thus, as first-generation students look toward college, they often do so without the direct support and assistance from their family, and often without assistance from school personnel as well.

As they look toward selecting a college, first-generation students often have different reasons for their choice than do other students. Inman and Mayes (1999) asked community college students why they selected a college. First-generation students were more likely to select not being able to leave home or wanting to go to school close to home, along with needing night courses, as more important reasons for choosing a particular school than other college students. These students also wanted career-specific coursework and desired to increase their self-confidence more than non-first-generation students. Nunez and Cuccaro-Alamin (1998) found these and other factors are critical as well when selecting a college. First-generation college students in this national sample reported that financial aid, being able to finish quickly, being able to live at home, being able to work while in school, and specific course offerings were very important to them when they selected their college. Non-first-generation students in this study were less likely to select these reasons as being very important (Nunez & Cuccaro-Alamin, 1998). It appears that first-generation students may be constrained in their college choices in terms of geography and financial aid support.

With the exception of the national, longitudinal studies cited above, no quantitative research could be found that focused on first-generation college students prior to their arrival to college. It is evident that the choices made in high school and earlier are predictive of college success, but researchers continue to focus on how to assist students upon their arrival at college, which ignores the large group of students who do not make it to college. Additionally, gaps in the research are evident. Little research exists on perceived barriers and supports specific to first-generation students, and information on expectations related to college success is negligible. Needed is a framework for selecting variables that, early on, influence first-generation students expectations, beliefs, and plans regarding post-secondary education.

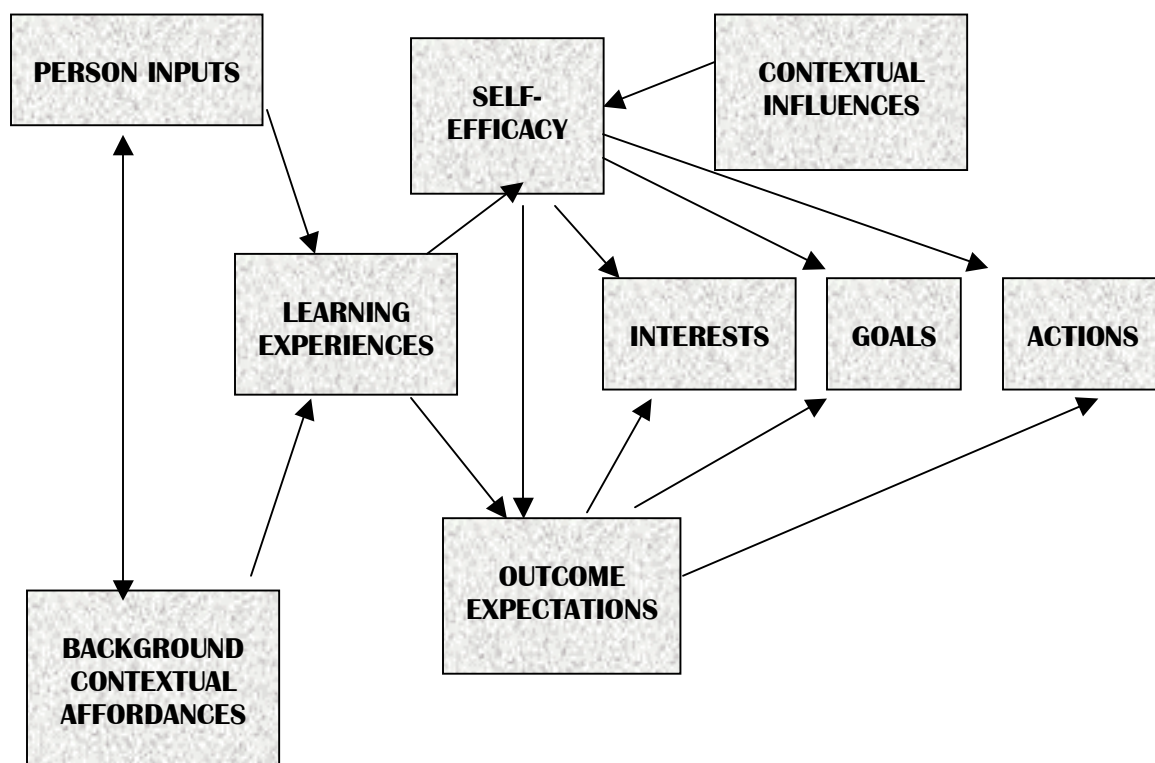
Social Cognitive Career Theory Overview

Social Cognitive Career Theory (SCCT; Lent, Brown, & Hackett, 1994) was created to integrate various theoretical frameworks into one central theory of career development. This model of career development explains how educational and career interests are cultivated, how choices are made, and how goals are achieved. Academic goals are seen as inextricably intertwined with career planning in the SCCT model. Based on general social cognitive theory (Bandura, 1986), SCCT focuses on the relationship between *self-efficacy*, *outcome expectations*, and *goals*. Self-efficacy is a self-perception of ability to complete a task or set of tasks. Outcome expectations refer to a person's beliefs about what will happen if a task is completed, and goals are the outcomes that a person works toward. The central role of self-efficacy makes the theory distinct from other career theories. Learning experiences are integrated into positive, neutral, and

negative activities that directly affect people's beliefs about their career and educational abilities. Learning experiences, in turn, are affected by person inputs (e.g., age, gender, ethnicity) and background influences (e.g., SES, parent education level). Both self-efficacy and outcome expectations directly impact interests, goals, intentions, and actions. In addition, the relationship between self-efficacy and outcome expectations, as influenced by background variables and learning experiences, affect decision-making and actions as well. To help explain the model, the authors created a path diagram that displays the connections between each of the SCCT variables. This model is depicted in Figure 2.

Contextual influences complicate the choice process in SCCT through their effects on self-efficacy beliefs (Lent et al., 2000). Contextual influences refer to perceived supports and barriers that can strengthen or weaken self-efficacy beliefs about career and educational options. These are perceived beliefs about the environment related to a person's career and educational planning. Perceived barriers can be powerful influencers of career interests and choices, and they may guide decision-making about future plans. On the other hand, beliefs regarding social supports can help strengthen self-efficacy and provide a buffer for perceived barriers. In SCCT, the focus is on barriers and supports as related to making and executing career goals. Relatedly, the concept of coping efficacy plays a role in barrier and support influences. Lent et al. (2000) recently posited that the stronger the perception of a person's ability to cope with perceived barriers, the less those barriers will ultimately affect self-efficacy, intentions, and goals.

Figure 2. Depiction of the SCCT Model, as Proposed by Lent, Brown, & Hackett, 1994. Includes the Revision of Effect of Contextual Influences, as Proposed by Lent et al., 2001, 2003a.



Other variables that may affect the strength of contextual influences, according to the theory, are dispositional affect and the relative strength of these supports. Currently, researchers are just beginning to conduct studies on contextual influences as related to SCCT (Lent et al., 2000; Lent et al., 2003a).

An important aspect of SCCT is its relationship to time. The theory is presented as three interlocking models or stages of career development (Lent et al., 1994). The

three models provide a timeline for career and academic development, beginning in childhood and moving through adolescence and adulthood. Each model directly feeds into the next, and the same constructs of self-efficacy, outcome expectations, and goals are used throughout each stage.

First is the model of *interest development*. Interests are developed based on person inputs and learning experiences during childhood and adolescence, but they can change throughout one's lifetime. Interests are directly affected by self-efficacy and outcome expectation beliefs and they, in turn, directly influence intentions and pursuit of goals. The theorists proposed that occupational and educational interests are influenced by one's abilities, but that the effect of actual ability on these interests is mediated by a person's perception of these abilities. Second is the model of *career choice*. Choice goals, or the intention to pursue a specific career or educational pathway, are developed based on self-efficacy, outcome expectations, and interests, and may be altered based on performance or perceived barriers. Although people typically aspire initially to occupational and educational goals that match their abilities, self-perceptions about these abilities (based on learning experiences and perceived supports and barriers) can directly affect the choices a person actually makes. Finally, the third stage is that of *task performance*. SCCT predicts a relationship between self-efficacy and outcome beliefs and actual academic and career performance and persistence. Abilities affect perceived beliefs, but performance is still directly affected by the perception of aptitude (Lent et al., 1994). These three models basically provide a timeline of career and academic development, although it also is assumed that interest development, choice, and

performance often happen nearly simultaneously. Each aspect of career and academic development is affected by the relationship between self-efficacy and outcome expectations to interests, goals, and actions, and by the direct effects of self-efficacy, outcome expectations, and contextual influences. By providing this timeline, SCCT can be applied usefully to any aspect of the career development timeline, including middle school activities.

Research Supporting SCCT

Various researchers have provided general support for the SCCT model. For the most part, research on SCCT has been conducted with college students. The SCCT model has been found to explain career and educational development of African Americans (Byars & Hackett, 1998; Gainor & Lent, 1998), Native Americans (Turner & Lapan, 2003), and Hispanic/Latinos (Flores & O'Brien, 2002) as well as Caucasians (e.g. Lent et al., 2001, 2003b). The strongest support for the theory has been for the role of self-efficacy in career and educational decision-making. Researchers (e.g., Hackett & Betz, 1989; Hackett, Betz, Casa, & Rocha-Singh, 1992; Lent, Lopez, & Bieschke, 1993; Pajares & Miller, 1995) have found that self-efficacy beliefs are stronger predictors of career and educational decisions and goals than performance or ability alone. Specifically, self-efficacy has been found to be related to interests (Lent et al., 1993), academic achievement (Hackett et al., 1992; Multon, Brown, & Lent, 1991), educational and career choices (Hackett & Betz, 1989), and selection of college majors (Betz & Hackett, 1983; Pajares & Miller, 1995).

Although less research has been conducted specific to outcome expectations, several studies have provided support for this construct as well. Outcome expectation beliefs have been found to directly affect interests (Gainer & Lent, 1998; Gore & Leuwerke, 2000; Kahn, 2001; Lopez, Lent, Brown, & Gore, 1997)) and intentions to explore specific careers (Betz & Vuyten, 1997; Diegelman & Subich, 2001). These studies also have revealed a direct relationship between outcome expectations and self-efficacy, with the latter affecting people's beliefs in what will happen if they pursue a specific career or educational choice.

Support has been mixed for the role of background influences. Ferry, Fouad, and Smith (2000) found that parental encouragement directly affected learning experiences, which in turn affected self-efficacy and outcome expectations, thus supporting the theory of contextual influences. Other background variables such as SES and parenting style, however, were not found to be predictive of career development in their study. In another study, family SES, level of acculturation, and involvement in career development were found to influence Asian Americans' career choices (Tang, Fouad, & Smith, 1999). Disability status also has been found to be a background variable that is predictive of self-efficacy (Ochs & Roessler, 2001). Clearly, background influences play a role in the development of self-efficacy and outcome expectation beliefs, but it is still uncertain which factors are the most potent predictors for which students.

One recent change to the SCCT model is related to the effect of contextual influences (supports and barriers). Recent tests of the model (e.g., Lent et al., 2001; Lent et al., 2003a) have identified a different path of influence than was originally presented.

In the original model, perceived barriers and supports directly affected interests and choice intentions. Based on new findings, there is some support for the influence of barriers and supports on interests and goals as mediated through self-efficacy. In addition, Lent and his fellow researchers (2001, 2003a) found that while supports and barriers affected self-efficacy, supports were strong influences whereas barriers only slightly affected. Other researchers of barriers (Kenny, Bluestein, Chaves, Grossman, & Gallagher, 2003; Flores & O'Brien, 2002) also have found weak relationships between barriers and self-efficacy or later career goals. Clearly, more research needs to be conducted on contextual influences as related to career and educational choices.

Middle and High School Students and SCCT

Although the bulk of research on SCCT has been with college students, several researchers have applied the model to younger adolescents as well (e.g., Fouad & Smith, 1996; Shoffner, Newsome & Barrio, 2004). This research is important because it supports the SCCT stance that the theory can be applied to any part of the career and educational development timeline. Most of these studies fall into one of two categories. Some researchers have focused on confirming whether SCCTs tenets are useful in explaining career and academic development in younger people. Other researchers have made the assumption that the theory is adequate for this population and instead have explored either a specific SCCT variable or applied the SCCT model to a specific group within the adolescent population. This second group has based their research on the idea that SCCT fits for adolescent career development, with particular interest in identifying unique

characteristics involved in career and educational planning for specific populations.

Overall, the SCCT model has been mostly supported by these lines of research.

General tests of the theory. Fouad and Smith (1996) were the first to assess the fit of the SCCT model with middle school students. They tested three aspects of SCCT: the relationship between self-efficacy, outcome expectations, and interests; the relationship between self-efficacy and intentions; and the relationship between outcome expectations and intentions. In this study, intentions replaced goals in order to better reflect the career developmental level of middle school students. Contextual influences (i.e., barriers and supports), background affordances, and learning experiences were not included in the study. The participants ($N = 380$) were seventh and eighth graders from mostly low SES families. Over half were Hispanic/Latino, 15% were Caucasian, and 11% were African American, with the rest representing various other ethnic groups.

Students were given assessments related to their math and science self-efficacy, outcome expectations, interests, and career intentions. Results from the path model indicated general support for SCCT. Self-efficacy was directly related to outcome expectations, interests, and intentions; outcome expectations directly affected interests and intentions; and interests directly affected intentions. The model fit for the three main ethnic groups (i.e., Hispanic/Latino, Caucasian, African American) surveyed in the study, suggesting that SCCT appears to explain career development for minority students. Gender differences were found, with males having lower interest in math and science but higher outcome expectations related to these areas of study. Overall, SCCT was identified as a useful theory in explaining middle schoolers' career development.

As they were developing the study described above, Fouad and Smith also created the instrument used to measure math/science self-efficacy and outcome expectations. Evidence of the validity and reliability of the Middle School Self-Efficacy Scale (Fouad & Smith, 1997) is described in detail in a second article by the authors. This scale, based on the Career Decision-Making Self-Efficacy Scale (CDMSES; Taylor & Betz, 1983), a widely used measure of career decision-making for adults, was created specifically to match the developmental level of middle school students. Internal consistency reliability alphas ranged from .70 for the outcome expectations section to .79 for the self-efficacy section with a sample of middle school students ($N = 361$). Since the participants in this study were mostly minority, caution must be taken in evaluating the results. Even so, this first measure specific to SCCT variables with middle school students appeared to have merit.

A second group of authors tested the SCCT model with high school students. Lopez, Lent, Brown, and Gore (1997) surveyed 10th and 11th grade students ($N = 296$) at a mostly Caucasian, middle class, high school. The purpose of the study was to examine models of academic interest development and actual performance within SCCT domains. Math ability, sources of math self-efficacy, actual math self-efficacy, math outcome expectations, and math-related interests were assessed. Mathematics was selected because of its link to the wide range of careers that require math and science. No significant gender differences were found to affect the model, and ethnicity differences were not examined due to the largely homogenous sample. Actual math ability was found to affect self-efficacy indirectly through perceived past performance (learning

experiences), which supported the SCCT model. In addition, self-efficacy affected outcome expectations which in turn affected math-related interest. Again, the results supported the SCCT model. One issue with the selected participants was their high level of math ability, which may have skewed the results of the study. Nevertheless, results suggested the SCCT model appears to provide an adequate explanation for the development of math-related interests in high school students.

The SCCT model and its relationship to Holland types in high school students also have been studied. Lent, Brown, Nota, and Soresi (2003b) examined self-efficacy, outcome expectations, supports and barriers, interests, and career choice in a group of Italian high school students ($N = 796$) from various regions of Italy. The purpose of the study was to assess the validity of various parts of the SCCT model and to examine the degree of fit for each of the six Holland types (i.e., Realistic, Investigative, Artistic, Social, Enterprising, Conventional; RIASEC). Most of the students were from middle class families and they represented each grade of high school. The assessments measured each SCCT construct individually within each of the six RIASEC types, so, in essence, self-efficacy, outcome expectations, interests, and supports and barriers each were measured six times. Results indicated that self-efficacy predicted outcome expectations and interests for each of the six types. Outcome expectations also predicted interests for each type. Interests predicted choice for all six types, while self-efficacy and outcome expectations predicted choice for only some of the interest areas. The pattern of prediction found in this study generally supported the SCCT model. One important finding was that supports and barriers directly affected only self-efficacy, and the effect

of supports was much stronger than that of perceived barriers. It may be that perceptions of barriers were suppressed by sources of social support. Again, the SCCT model appeared to work with a high school population.

One qualitative study with middle school students focused on outcome expectations within the SCCT model. Shoffner, Newsome, and Barrio (2004) interviewed middle school students ($N = 95$) from diverse socioeconomic, ethnic, and academic backgrounds about their beliefs related to upper-level math, science, and computer courses. Using a focus group format, the researchers asked the students what they believed would happen if they took more advanced courses in these subjects during high school. Attention was given to both positive and negative responses. Responses were grouped together and coded into five main themes. The first three themes of physical, social approval, and self-satisfaction matched Bandura's (1997) proposed outcome expectation domains, which also are applied in SCCT (Lent, Brown, & Hackett, 1994). In addition, however, Shoffner et al. (2004) identified two new outcome domains. The relational domain encompasses outcomes related to interpersonal and social impact, and the generative domain includes outcomes related to giving back to society and impact on immediate educational environment. The authors recommended that these new domains be included in outcome belief studies. Overall, participants rated physical outcome expectations (i.e., financial impact, influence on employment opportunities) as most important to their decision-making process. This study demonstrated the usefulness of examining outcome expectations in middle school students and the impact that these beliefs can have on educational choices made by these students. This is an important

addition to the SCCT literature because it is one of the only studies to focus on the relevance of the various types of outcome beliefs to career and academic decision-making.

Finally, in a longitudinal study, Nauta and Epperson (2003) examined the usefulness of SCCT in explaining career development over a period of time. This research is vital to the SCCT literature because it is one of the only studies to focus on the central tenet of time in SCCT. Science and math ability, course enrollment, interests, high school math and science self-efficacy, college science and math self-efficacy, and outcome expectations were assessed in a group of Caucasian high school students from all grade levels ($N = 204$) and again 4 years later. Math-science ability was found to affect self-efficacy beliefs, which affected interests and outcome expectations. Math and science high school and college self-efficacy were only slightly related, suggesting that self-efficacy can be altered during adolescence. In addition, selection of a science or math college major in college was associated with higher self-efficacy and outcome expectations related to those areas. On the whole, this study provided support for the use of SCCT in explaining career development over time, starting with the career decision-making process in high school and continuing through to actual implementation of those goals in college.

Specific populations and SCCT. Several studies of specific populations or constructs related to SCCT provide additional information on the theory as well. McWhirter, Rasheed, and Crothers (2000) investigated the effect of a career education intervention on various SCCT variables among high school sophomores. The mostly

Caucasian participants ($N = 166$) were enrolled in a single high school in an urban area. Career decision-making self-efficacy, vocational skills self-efficacy, educational barriers, teacher support, outcome expectations, and educational and career plans were assessed prior to and after a 9-week career intervention. Both types of self-efficacy and outcome expectations increased immediately following the intervention, but then declined over time, suggesting that these constructs might need long-term interventions in order to be permanently raised. Perceptions of barriers were not affected by the intervention, although career expectations did rise slightly as a result of the class.

Kraus and Hughey (1999) also examined the effect of an intervention on career decision-making self-efficacy. They assigned high school juniors ($N = 60$), most of whom were Caucasian, to either an eight-section career course or to the control group who received no treatment. At the end of the sessions, no differences were found in the levels of career decision-making self-efficacy or career indecision between the treatment and control groups. Again, this suggests that interventions might need to be long-term in order to effectively change career-related self-efficacy. Interestingly, males in this study had higher career decision-making self-efficacy than females, regardless of treatment. This might suggest gender differences in career-related self-efficacy.

Turner and Lapan (2002, 2003) have investigated the relationship between interests, self-efficacy, and parent support in a series of SCCT-related studies. The authors have investigated these concepts in middle school students (Turner & Lapan, 2002), Native American middle schoolers (Turner & Lapan, 2003), and rural high school students (Lapan, Hinkleman, Adams, & Turner, 1999). In each case, they utilized a

survey that assessed self-efficacy, interests, and perceived support based on Holland themes. For each study, results suggested that parent support, defined as influence on and encouragement of the career planning process, strongly affected vocational interests. Although gender and ethnicity differences existed across specific interest areas, in all cases parent support affected the confidence levels and career goals of the surveyed students. Since two of the three studies focused on middle school students, the results suggest that parent support is a significant influence on self-efficacy and career and educational interests within the SCCT model.

Lastly, two studies specifically targeted perceived barriers and supports among high school students. McWhirter (1997) compared perceived barriers among Mexican-American and Caucasian upper high school students ($N = 1139$). Students were surveyed on their beliefs about potential barriers to career and college success. Results indicated that females perceived more career barriers related to sex discrimination and less to ethnic discrimination. Fewer gender differences were found related to college success, but females did indicate that if they did not attend college, it would more likely be because of lack of interest or a belief that college would not be helpful to them. Both males and females believed they could overcome their perceived barriers. For ethnicity, Mexican-Americans were more likely to cite family issues, lower intelligence level, and not fitting in as barriers to attending or completing college. No interaction effects existed between gender and ethnicity, suggesting that differences exist for both person characteristics. This result supports SCCT theory, which suggests that person characteristics directly affect all aspects of the SCCT model.

Flores and O'Brien (2002) also assessed perceived barriers, along with supports and other SCCT variables, in female, Mexican-American high school seniors ($N = 364$). The researchers were primarily interested in the development of nontraditional career beliefs among these adolescents. For assessing barriers, they used the same instrument as the above study. Parental support was the primary social support studied in this survey. The results demonstrated that higher levels of parental support increased career aspiration and choice goals. Barriers did not significantly affect aspirations in this study. Importantly, the authors utilized the path structure suggested by the earlier SCCT model, which suggests that supports and barriers directly affect aspirations and goals rather than being mediated through self-efficacy. It is not known how the results would have been affected if they had used the more recent SCCT model. Nevertheless, perceived social support was found to be more influential than barriers in this study.

Clearly, general support for the use of SCCT in explaining adolescent academic and career development has been found. The studies cited above overwhelmingly support several tenets of the theory. First, the effect of actual ability on interest and choice goals is mediated through self-efficacy beliefs. Second, self-efficacy directly affects outcome expectation beliefs, and both self-efficacy and outcome expectations then predict interests. Third, the model appears to be useful with both Caucasian and minority students. Finally, evidence suggests that SCCT explains career development over time. These general confirmatory studies, however, tended not to include contextual influences or background affordances, so less evidence for this part of the theory is available.

The studies specific to a certain construct or population related to SCCT do, however, provide additional information about the theory. Parental support consistently has been found to influence self-efficacy and interests. Perceived barriers to educational and career pursuits have received less support, with studies reporting results showing only weak associations between barriers and other career-related beliefs. Finally, it appears that self-efficacy beliefs and perceptions of barriers are strongly held and do not change based on short-term interventions. These themes suggest that studies investigating these constructs need to be conducted with younger students so that long-term interventions can be designed to make more permanent alterations to these beliefs.

Perceptions of Educational and Career Barriers

In addition to the literature specific to SCCT, other researchers also have investigated the role of perceived barriers in career and educational development. These studies typically examine the types or strength of perceived barriers to future success. Importantly, the studies provide information on gender and ethnicity differences in perceptions of barriers as well as indicate specific types of career-related barriers that may be of most concern for adolescents.

Several researchers have focused on urban youth, who have been identified as being at-risk for not completing their schooling goals. Ladany, Melincoff, Constantine, and Love (1997) investigated vocational beliefs in a group of urban high school students ($N = 189$). Almost half of the students were African American and the participants represented all grade levels. To measure perceptions of barriers, students were asked four forced-choice questions about potential external issues related to achieving their career

goals. Results indicated that students who were less committed to the career exploration and selection process tended to perceive more barriers to career success. In addition, students who reported being less likely to continue their education beyond high school also were less committed to career choices and perceived more barriers to achieving their career goals. Although the results seem to suggest a link between perception of barriers and college-going and career planning, caution must be taken because of the forced-choice response format. It is unknown how big a barrier each option was or if students believed the barrier could be overcome. Nevertheless, it seems important to assess for perceived barriers early enough so that appropriate interventions to overcome them can take place.

Kenny et al. (2003) also examined perceived barriers in urban high school students. In two related studies, the authors assessed the affects of perceived barriers and social supports on school engagement and career goals. In the first study, the researchers surveyed ninth graders from two low-income, ethnically diverse high schools ($N = 174$). Over 60% of the participants identified themselves as Black or African American, with another 21% identifying as Hispanic/Latino. Barriers were assessed using the Perceptions of Barriers Scale developed by McWhirter (1997). Results of a canonical analysis demonstrated that perceived barriers affected school engagement and career aspirations, even after controlling for gender and family support. No gender differences were found for the perceived barriers. Based on these results, the second study assessed ninth graders ($N = 181$) from the same schools used for study one. This time, the Perceptions of Educational Barriers Scale (McWhirter et al., 2000) was used to assess barriers. Although

developed by the same author, the barrier scale used in study two is different in that it assesses barriers to postsecondary education only and it includes scales of coping efficacy and magnitude of barriers. The results of this study again found no gender differences for barrier perception. In addition, perceived barriers were found to affect educational and career attitudes negatively, but only slightly. The authors suggested it may be that more research is needed on the specific types of barriers perceived by urban youth. The results do show, however, that barriers play some role in the educational and career planning of ninth graders.

A third study examined the barriers to career learning in low-income, urban middle school students. Jackson and Nutini (2002) interviewed 21 middle school students participating in a program for developing career needs of disadvantaged youth. The students were mostly African American or Hispanic/Latino, and over half participated in the English as a second language program at school. Over the course of 10 weeks, students were interviewed about perceived contextual and psychological barriers to learning. The authors identified themes in the types of barriers perceived by these students. Contextual barriers to learning included unsafe environment, discrimination, being from a low-income family, lack of or negative social support, and lack of or negative models of behavior. Psychological barriers to learning included low academic self-efficacy, low relationship self-efficacy, unrealistic beliefs about college and career, and lack of effective coping skills. Although the research was conducted with a small number of students who were receiving specialized career development services, the

results still add to the list of specific barriers that students may believe they will face in career and school planning.

In three studies of perceived barriers among college students, Luzzo and colleagues (Luzzo, 1993; Luzzo & Hutchenson, 1996; Luzzo & McWhirter, 2001) examined gender and ethnicity differences along with developing lists of the types of barriers identified by these students. In a study of mostly freshmen and sophomore traditional-aged undergraduates ($N = 375$), Luzzo (1993) used an open-ended survey to ask participants about past and future perceived barriers. The participants were mostly Caucasians ($n = 207$), but African Americans ($n = 26$), Hispanic/Latinos ($n = 49$), Fillipinos ($n = 37$), and Asian Americans ($n = 56$) were represented as well. Luzzo found no ethnicity differences in the number of perceived barriers, either past or future. Overall, barriers related to family and study skills were most common. Financial concerns were cited more often by African American and Caucasian participants, and ethnic identity barriers were cited by almost half of the African American participants as well. Luzzo and Hutchenson (1996) surveyed mostly Caucasian college students to assess gender differences in perception of barriers. Again, an open-response format was used to identify past and future career barriers. In this study, women perceived more future career barriers than men. The type of career barriers perceived did not differ, however, except for past family-related issues, which were cited by females but not by males. Finally, in the third study, Luzzo and McWhirter (2001) used an adapted version of the Perception of Barriers Scale (McWhirter, 1997) to assess career-related barriers of freshman undergraduates ($N = 286$). The female participants in this study perceived more career barriers than did the

males. In addition, the ethnic minority students perceived more career and educational barriers than did the Caucasian students. No gender differences were found in participants' beliefs in their ability to cope with the perceived barriers, but the minority students reported much lower coping ability than the Caucasian students. The results of these three studies suggest that gender and ethnicity differences may exist in perception of barriers, and that this must be taken into consideration when studying these perceptions.

In another study that examined gender differences in barrier perceptions and educational goals, Rojewski and Hill (1998) surveyed primarily ninth graders from a single high school. The participants were mostly African American (66%) or Caucasian (24%), and two-thirds were female. Their results suggested that males perceived more external barriers, felt more discouraged about career planning, believed they lacked more information on careers, and indicated a greater lack of interest in career planning than did the females in the study. In fact, perception of a greater number of external barriers was found to be the most significant difference between the male and female participants. At least for this study, it was the male students who perceived more barriers to educational and career planning and success.

Finally, Vargas (2004) reviewed the literature on low-income, first-generation, and minority students to describe the barriers to college entrance and success for these groups. He combined the results of his searches and found that to achieve college aspirations, the biggest barrier to overcome is gaining enough college-preparatory information and guidance. Informational barriers appeared to be related to lack of

parental knowledge about college-going along with a lack of long-term guidance and planning. Financial information, how to apply to college, connecting current educational choices with future career and college goals, selecting appropriate high school courses, and selecting appropriate college options were the primary areas where more information was needed by these at-risk students. Vargas suggested several ways that schools can assist these students, including providing early interventions focused on increasing the college knowledge of students and their parents.

It appears that, when asked directly, students are able to specify barriers to their educational and career planning. The strengths of these barriers, however, are not always evident when quantitatively researched. It may be that the qualitative research on barriers has not yet been adequately transformed into a quantitative survey on perceived barriers. Clearly, more research needs to be conducted on these perceived threats to furthering one's education in order to adequately assist students in overcoming these hurdles. In addition, the specific types of barriers for first-generation students need to be identified, along with any gender or ethnicity differences in these perceptions. This information will help practitioners create programs that reduce barriers and strengthen supports for these students, thereby increasing the likelihood that they will graduate from college.

Social Support for Career and Educational Development

The SCCT literature (e.g., Flores & O'Brien, 2002; Lent et al., 2003a; McWhirter et al., 2000; Turner & Lapan, 2002, 2003) has indicated that social support from parents and teachers influences career and educational planning both directly and indirectly. Other researchers studying career development in adolescents also have found evidence

of the influence of parents and teachers on educational and career development. These additional studies add depth to the importance of both identifying potential sources of support and studying the differences in perceived support among various groups of adolescents.

Family, teachers, and peers are the primary sources of support for adolescents (Wall, Covell, & Macintyre, 1999). Consistently, parents have been identified as the primary influence on career development (e.g., Nauta & Kokaly, 2001; Otto, 2001; Phillips, Christopher-Sisk, & Gravino, 2001). In addition, general school climate, or a safe and caring environment at school, was observed to influence both academic self-concept and overall satisfaction with school (Baker, 1998). Additionally, Nauta and Kokaly's (2001) work suggested that same-sex school personnel are influential on career and academic planning of high school students. Lapan, Tucker, Kim, and Kosciulek (2003) also found a relationship between school supports and career and educational planning. They surveyed 8th, 10th, and 12th graders and found that those who perceived more support from counselors and teachers also reported more satisfaction with their overall education. Those who perceived more support also had higher educational levels, connected their current schooling with their future career plans, and believed that school was preparing them for their future educational plans. Overall, parent and school support seem to be influential in the career and educational planning of adolescents.

Support, both in the SCCT literature and in other career research, is often defined as perceived influence and encouragement related to career and educational planning (e.g., Lent et al., 1994; Paa & McWhirter, 2000; Turner & Lapan, 2002; Young et al.,

2001). Dubow, Tisak, Causey, Hryshko, and Reid (1991) added to this definition the idea that social supports provide to an individual a perception that he or she is valued or believed in by another person. Beliefs and expectations about careers and education are not only specific to an individual, but also general in nature (Jacobs, Finken, Griffin, & Wright, 1998). For example, parent's beliefs in the need for a college education in general can influence their child's decision-making about attending college. Finally, Nauta and Kokaly (2001), in their research on role models in career planning, defined supporters as those who influenced another person by either being persuasive or just being highly regarded by that person. In all of these definitions, it is important to remember that it is the perception of support for career and educational planning by an individual that is being measured. This perception is separate from what parents or teachers themselves believe they are doing, and instead is based in the adolescent's belief system.

Malecki and Demaray (2003) examined the specific types of social support needed for middle school students. They surveyed 263 diverse students in grades five through eight about their perceived valuation and frequency of support from parents, peers, and teachers. Support type was categorized into four types: emotional (trust and love), instrumental (provision of resources), informational (advice or concrete information), and appraisal (constructive feedback). In general, the researchers found that parent and close friend support were the most frequent 'most important' sources of support, followed closely by teacher support. Specifically, emotional and informational support were the most frequent type of support from parents, information support was

most frequent from teachers, and emotional and instrumental support were most frequent from peers.

The authors then examined the support types related to predictors of success (Malecki & Demaray, 2003). A regression analysis identified which support types were significant predictors of student adjustment. Parent support in general accounted for 18% of the variance, but no single type of support (e.g., instrumental, emotional) was a significant predictor of adjustment. Emotional support from teachers was found to be a significant predictor of social skills and academic confidence, and teacher support as a whole was found to predict school adjustment in general. Peer support was not found to be a significant predictor of any type of student adjustment. Overall, these results suggest that social support is a vital component for academic success and school adjustment, and that the type of support received makes a difference in the power of that support, at least for middle school students.

Ethnicity and Social Support

In addition to general data suggesting that parent support influences career and academic planning, specific research focused on race and gender differences adds important information to this concept. Several researchers have compared perceived social support among students of different ethnicities. Otto (2000) surveyed African American and Caucasian high school juniors ($N = 371$) regarding parental influence on their career and educational planning. About half of the students said they talked often about careers with a parent. Caucasian students indicated they talked seriously about career plans with their mothers and friends equally, followed by their fathers, while the

African American students reported talking about career plans most with their mothers, followed by friends and then fathers. In terms of helpfulness in career planning, both groups rated their mothers most helpful, with fathers and other relatives next for the Caucasian students and peers and adult friends next for the African American students. Finally, for college planning, African American students turn to mothers, followed by friends, school counselors, siblings, and teachers. For Caucasian students, mothers, then fathers and friends were consulted regarding college plans. Clearly, both student groups were able to identify sources of social support but, except for mothers, they differed in who was most influential in their lives.

In another study, Levitt, Guacci-Franco, and Levitt (1994) examined differences in social support through interviews over time with a nearly equal representation of African American, Caucasian, and Hispanic/Latino ($N = 333$) students. Participants were interviewed beginning in first grade and then twice more through ninth grade. For this study, the authors asked about social support in general, not only specific to career and educational planning. The students also were allowed to select anyone who was a source of support, so the results are indicative of wide-ranging sources of social support (e.g., parents, peers, adult friends, teachers). Across the ethnic groups, strength of support was found to be related positively to cognitive self-concept, grade point average, and SAT score. No differences by ethnicity on these variables were found for the students as adolescents. It appears that ethnic differences in social support are related to specific sources of this support rather than the effect of receiving support for academic and career planning.

Three studies have been focused on social support for minority students. In their interviews with low-income middle school students, Jackson and Nutini (2002) identified social supports as the primary contextual resource for a positive learning environment. The students interviewed consistently talked about family support, positive role models, school community support, and school programming support as resources for career planning. The authors suggested that these resources could add to the resiliency of students who traditionally are less likely to be successful in school.

Chung, Baskin, and Case (1999) interviewed 6 African American, adult males regarding career and academic development. For these men, role modeling and social support from their fathers strongly influenced their career and educational plans. Mothers also were cited as important, but male role models seem to be more significant for these participants. Finally, Witherspoon, Speight, and Thomas (1997) surveyed African American high school students ($N = 86$) involved in a college preparatory program. Almost all of the participants reported that their family encouraged their involvement in academics, with only 4.5% indicating that their parents did not encourage them. About half of the respondents reported that they received peer support for their academic activities. Given that all of the students were involved in a college preparatory program sponsored by their school, caution must be taken in generalizing these results to all African American students. Nevertheless, it appears that these students perceived the most support from their parents regarding their educational activities. Since the participants in all of these studies were primarily African American or Hispanic/Latino the results indicate that social supports are helpful in the career development of minority

students. Therefore, it appears sound to study social supports in both Caucasian and minority adolescents.

Gender and Social Support

Gender differences in perceived social support also have been found by several researchers. McKenna and Ferrero (1991) surveyed ninth graders ($N = 5,937$) from across one Midwestern state regarding their attitudes toward career and educational planning. Students were given a list that included father, mother, relative, friend, teacher, counselor, workers, tv/radio, books, and computer and asked to rate each regarding degree of helpfulness (i.e., much, some, no) in providing career information. Girls most often selected mother, followed by worker and father, as the most helpful, while boys rated father first, followed by mother and worker. For girls, computers, co-worker, and tv/radio were most often rated as being of no help; for boys, computers, tv/radio, and counselor were rated as not helpful. It can be assumed that computers ranked so low due to when this data was collected. The other selections, however, provide some insight into the perceived helpfulness of the same-sex parent, with girls selecting mother and boys selecting father most often as the most helpful resource for career information.

Paa and McWhirter (2000) also surveyed 9th and 10th graders ($N = 464$) regarding influencers on their career plans. In this survey, students were asked to rank order a list of influences (i.e., mother, father, male teacher, female teacher, male friends, female friends, school counselor) from most to least influential on their career plans. Both genders selected same-sex people as the most influential. Males selected fathers, male friends, and male teachers as more influential than did their opposite sex

counterparts, but, in the rank orderings, mothers were still selected as the second most influential (after fathers), followed then by male friends and male teachers. For females, the same-sex trend was even stronger, with mothers, female peers, and then fathers and female teachers being ranked as most influential. For both groups, school counselors were rated as the least influential. In his research on social influences on career development, Otto (2000) also found that parents were most helpful in career planning. In his study, both males and females ranked their mothers as most helpful, with girls then ranking peers, adult friends, relatives, and fathers next in terms of helpfulness. Boys selected fathers as the second most helpful, followed by relatives, peers, and adult friends. Both groups indicated that their mother was the one they most often spoke with about careers. Clearly, parents are extremely influential overall on career and educational planning, with the same-sex parent being the most influential to their children.

Other researchers have found similar results related to perceived social supports. Wall, Covell, and Macintyre (1999) explored the relationship of social supports to career and academic goals in high school students ($N = 260$). Data were collected on social support from peers, teachers, and family, with higher scores reflecting more perceived support from each social group. Although both males and females ranked family as the most supportive, followed by peers and teachers, gender differences were found related to the influence of these social supports. For females, all three sources of support influenced the perception of educational opportunities, which then influenced educational expectations. For males, however, only family support influenced perception of educational opportunities, which then influenced educational expectations. These results

may suggest one of two things: either that females perceive influential support from more sources than do males, or that males are less likely to be influenced by sources of support beyond the family. In either case, it is important to recognize the influence of others on the educational planning of males and females.

One group of studies did not yield gender differences in perceived support. Kenny et al. (2003) surveyed ninth graders in two related studies on the effects of barriers and supports in the career and educational planning of urban youth. In both cases, perceived level of general family support was not found to differ by gender. Those students who perceived strong family support held more positive views of school and believed in their ability to be successful in the world of work. The authors suggested that social support may be equally important for both boys and girls, and that this support may influence career and educational development, regardless of gender.

In reviewing these studies on social supports, it seems obvious that perceived family, peer, and school support is vital for positive educational and career development. Although some differences by gender and ethnicity are apparent, in all cases, social supports have been shown to influence career and educational development. Mothers, and fathers to a lesser extent, appear to be the most influential in this planning process. School support also seems to be influential, although to a lesser degree and with greater gender differences. Finally, peer support, especially for older students, appears to influence career and educational expectations and aspirations as well.

It is unknown whether differences in perceived support are related to the educational level of parents or whether parent education levels affect the strength of peer

and school support. In addition, the type of influence has been less often studied.

Although it is obvious that support is important, it is less clear what type of support from which sources are most helpful in career and educational planning. Additional data on social supports for first-generation students as compared to their peers would assist school counselors in two ways: first, the information would help counselors focus on strengthening existing sources of support, and second, the data could lead to the creation of programs designed to add additional supports for students in need.

Summary of the Literature

Ample research has demonstrated the importance of studying the educational aspirations of middle school students. Adolescents at this stage of development are beginning to make career-related decisions as they develop the ability to think abstractly. In addition, researchers have found that academic choices made in middle school (e.g., math class selection) impact a student's ability to succeed in high school and college. Differences in educational aspirations between first-generation students and their peers has been found as early as middle school, which again demonstrates the need for early interventions. In general, however, middle school students tend to think positively about their future and believe that a variety of post-secondary opportunities will be available to them.

Although researchers have examined gender and ethnic differences in educational aspirations, few have studied how parent education level affects these goals. Students who are the first in their families to attend college have been found to be unique from their peers in demographics, academic preparation, personality, and college-going

behaviors and beliefs. First-generation college students are more likely to be minority students, come from lower socioeconomic backgrounds, tend to be less prepared academically, and are more likely to leave college before graduating than their peers.

Most of the research on this population, however, has been focused on these students once they arrive at college. Much less is known about prospective first-generation students at earlier stages in their educational careers. In general, very little is known about their self-efficacy and outcome beliefs about attending and succeeding in college. Additionally, gaps exist in the literature about perceived barriers and sources of support for furthering their education.

Social Cognitive Career Theory (SCCT) has been demonstrated to describe effectively the career development of a variety of populations. The theory helps explain how career and educational interests develop, and how these interests are transformed into goals and then achieved. Through constant learning experiences, self-efficacy and outcome expectation beliefs are developed, which directly affect interests, intentions, and goals. Person characteristics such as gender and ethnicity, distant contextual influences such as SES and parent education level, and current contextual influences such as perceived barriers and supports also impact the development of self-efficacy and outcome beliefs.

SCCT has been used in studies of adults, college students, high school students, and middle school youth, with support for the theory found with each age group. Additionally, researchers have demonstrated general support for the use of SCCT with various ethnic groups. No SCCT-based study was found that examined the impact of

first-generation status on educational and career development. Parent education level appears to be an important background affordance that needs to be included in the SCCT literature, since it has been shown to be a unique contributor to differences in educational aspirations and pursuits.

This study added to the current literature in several ways. First, it added to what is known about first-generation students. These students need to be studied at an age when interventions can be proactive rather than reactive. Since middle school appears to be a critical time in educational and career development, it makes sense to focus on this age group. In addition, although much is known about the general characteristics of first-generation students, less has been revealed about their perceptions about college-going. These additional results can assist directly practitioners in finding ways to create new, more positive learning experiences that might lessen barriers, build on support systems, and alter self-efficacy and outcome beliefs about post-secondary education. If this is done early enough, these students might be more prepared for college, not only academically, but psychologically as well.

Second, this study added another dimension to the SCCT literature. It added to the growing literature on the application of SCCT to middle school students, and began the literature on the influence of parent education level as a background variable. Both pieces are important additions to helping support the use of SCCT as a viable career development theory.

CHAPTER III

METHODOLOGY

As suggested by the review of the relevant literature in Chapter Two, there is a strong need for further study of prospective first-generation college students. Although numerous studies have helped to describe the demographics of this population, very few researchers have examined these students before their arrival at college. It seems necessary to identify the perceived barriers, social supports, self-efficacy beliefs, and outcome expectations of this group early in their educational career so that counselors can develop programming to strengthen their chances for success at the post-secondary level. In this chapter, the methodology used in this study is explained, including research questions and corresponding hypotheses, participants, instrumentation, procedures, and data analyses.

Research Questions and Hypotheses

The following research questions and hypotheses were explored:

Research Question 1: Is there a statistically significant mean difference in the scores for levels of perceived barriers of postsecondary educational pursuits for first-generation students as compared to non-first-generation students? (Factorial ANOVA)

Question 1A: What are the perceived barriers to postsecondary education pursuits for first-generation students as compared to non-first-generation students? (Chi-square test of independence)

Hypothesis: It was hypothesized that first-generation students would perceive more barriers related to college-going.

Research Question 2: Is there a mean difference in scores for levels of perceived family and school supports for postsecondary education pursuits reported by first-generation students as compared to non-first-generation students? (Factorial ANOVA)

Hypothesis: It was hypothesized that first-generation students would perceive less family and school support for college-going.

Research Question 3: Is there a difference in college-going self-efficacy reported by first-generation students as compared to non-first-generation students? (Factorial ANOVA)

Hypothesis: It was hypothesized that first-generation students would have lower college-going self-efficacy.

Research Question 4: Is there a difference in college-going outcome expectations reported by first-generation students as compared to non-first-generation students? (Factorial ANOVA)

Hypothesis: It was hypothesized that first-generation students would have lower college-going outcome expectations.

Research Question 5: Does the SCCT model provide a good fit for both first-generation and non-first-generation students? (SEM path analysis)

Hypothesis: It was hypothesized that the SCCT model would be a good fit for both groups of students. Perceived barriers and supports would directly and significantly affect self-efficacy, while outcome expectations would be indirectly affected by supports

and barriers and mediated through self-efficacy. All of these would then affect strength of intentions.

Population and Sample

For the main study, 272 seventh graders from four middle schools in North Carolina were surveyed. Although the pilot study included students in 6th, 7th, and 8th grades, the main study focused solely on 7th graders. This age group is in the midst of the middle school careers but has not yet completed the high school registration process. The high school registration process may bias the results because it encourages thought about career and college planning. By focusing on 7th graders, this potential bias was eliminated.

The schools selected for participation in this study were chosen carefully based on demographic information. Attention was paid to ethnicity of students and the percentage of students on free or reduced lunch. Since researchers (e.g., Horn & Nunez, 2000) have found that first-generation college students are more likely to be Hispanic/Latino or African American and come from low socioeconomic backgrounds, schools with a high percentage of both minority students and students receiving financial assistance were targeted. This helped ensure that sufficient numbers of first-generation college students were included as part of the study. The goal was at least 100 first-generation students and 100 non-first-generation students from the targeted middle schools.

Instrumentation

All participants were asked to complete the study instruments in the following order: The College-Going Self-Efficacy Scale, the Perceptions to Educational Barriers

Scale – Revised, the Child and Adolescent Social Support Scale, the College-Going Outcome Expectations Scale, and the Demographic form. A rationale for this order existed. The self-efficacy scale and the outcome expectations scale are similar in both format and types of questions, so it was necessary to separate them as much as possible during the data collection process. This way, participants were less likely to become confused by the similarities in the two instruments. Therefore, the barriers scale and the support scale were placed in-between the other two instruments. The barriers scale was placed before the support scale because research on coping efficacy suggests that perceived strength of social supports often reduces the numbers and strength of barriers reported by people (e.g., Lent et al., 2001, 2003). Thus, the barriers items needed to be completed before the social support items.

College-Going Self-Efficacy Scale (CGSES): This measure was created solely for this study by the researcher. First, a review of the literature was conducted to determine if an existing self-efficacy instrument could be utilized. Several instruments were examined, including the College Self-Efficacy Inventory (Solberg et al., 1993), Middle School Career Decision-Making Scale (Fouad & Smith, 1997), Educational Degree Behaviors Self-Efficacy Scale (Gloria et al., 1999), and the Academic Milestones Scale (Nauta, Epperson, & Kahn, 1998). These scales, however, were either designed for use with college students, or they did not measure college-going self-efficacy but rather a different type of self-efficacy (e.g., career decision-making). No existing instrument was found that measured college-going beliefs before arriving at college. Since self-efficacy

is domain specific (Bandura, 1997), it was necessary to create a new instrument to measure this construct.

A further review of the literature revealed two aspects related to college-going: attendance and persistence (e.g., Horn & Nunez, 2000; Warburton et al., 2001). For students, it appeared that beliefs about being able to attend college and beliefs about being able to stay in college were related yet unique. Therefore, the CGSES was created to measure self-efficacy beliefs related to both parts of the college-going experience. Two counselor educators with experience in working with adolescents and self-efficacy measurement reviewed the scale as well. The purposes of their reviews was to ensure that the questions were task-specific, as required for self-efficacy instruments, and were age-appropriate. One of these specialists suggested changing the prompts in the survey to match other self-efficacy instruments. This led to changing the beginning of each prompt from “I will” to “I can” or “I could.” This change better reflects students’ perceptions of their capability rather than their intentions (Bandura, 1997). The other educator suggested slight wording changes to help make the instrument more readable.

The final scale contained 15 items related to college attendance and 16 items related to college persistence. In the college attendance subscale, students respond to the prompt “How sure are you about being able to do the following” using a four-point Likert-type scale (1 = not at all sure, 2 = somewhat sure, 3 = sure, 4 = very sure). Items reflect financial issues, such as “I can find a way to pay for college,” issues related to ability, such as “I can get good grades in my high school math classes,” family-related issues, such as “I can have family support for going to college,” decision-making skills,

such as ‘I can choose a good college,’ as well as one overall item: ‘I can go to college after high school.’

The persistence scale asks participants to answer the questions using the hypothetical situation that they did go to college and utilizes the same four-point scale as in the attendance subscale. Once again, questions were divided into domains based on the research on college persistence. Financial questions include ‘I could pay for each year of college’; ability items include ‘I could do the work in college’; family stems include ‘I could get my family to support my wish of finishing college’; and life skills questions include ‘I could set my own schedule while in college.’

In addition, three overall items about persistence were included as well, such as ‘I could fit in at college.’ Subscale scores for attendance and persistence, as well as a total score, provide an indication of strength of college-going self-efficacy beliefs. Higher scores indicate higher self-efficacy perceptions.

Perception of Educational Barriers Scale – Revised (PEB; McWhirter, 2000):

The PEB was created by McWhirter to measure variables that might be barriers to continuing education after high school. Twenty-eight barriers are included in this measure, and each is measured in terms of likelihood, strength, and ability to overcome the barrier. For each scale, participants rate the barrier on a four-point Likert-type scale (e.g., 1 = not at all likely, 4 = definitely). Scores are determined by adding the individual item ratings for each scale. The range of scores for the original scale was 28 to 112, with higher scores indicating more perceived barriers, greater perceived strength of barriers, and greater ability to overcome barrier. Concurrent validity was assessed by McWhirter

et al. (2000) using sophomores in high school. The scores were found to significantly correlate to a similar measure of career opportunities. In addition, the researchers found that higher scores on the PEB were associated with lower career decision-making self-efficacy.

This assessment was first used in a study of 166 high school sophomores from a single high school. Most of the participants were Caucasian and nearly all planned to attend some form of college (i.e., community or four-year university) after high school. In this study, McWhirter et al. (2000) found Cronbach's alpha scores for reliability of .96 for the total scale, and a range of .88 to .96 for each of the subscales. In another study with 181 urban high school freshmen, Kenny et al. (2003) reported a Cronbach's alpha of .90 for this assessment. In this second study, the students were primarily Hispanic/Latino or African American. These two studies suggest that the PEB is appropriate for use with both Caucasian and minority students. In addition, nearly half of the participants in the Kenny et al. study were prospective first-generation students, which indicated the appropriateness of using the PEB with this population.

Researchers on barriers (e.g., Lent et al., 2001, 2003b) have found that the effects of barriers on self-efficacy tend to be much weaker than the effects of social supports. These researchers suggested that the barriers scales used in studies such as these may not be comprehensive enough. Therefore, a review of the qualitative and quantitative research on barriers to college-going was conducted. This review identified multiple barrier themes, including uncertainty about career plans, unsafe environment, finances, lack of social support, gender and ethnic discrimination, lack of role models, negative

role models, family issues, lack of long-term guidance, lack of preparation, low academic skills, and not fitting in with others (e.g., Jackson & Nutini, 2002; Luzzo, 2003; Rojewski & Hill, 1998; Vargas, 2004). With permission from the original author of the PEB, revisions were made to the instrument. In creating the revised version of the PEB (PEB-R), the original 28 barriers were categorized by theme. Themes that lacked barrier items or only had one barrier listed were then identified. The primary researcher then created additional items based on these themes. This resulted in an additional 17 items being added to the PEB, bringing the total number of perceived barriers to 45. Examples of barriers include “not enough money,” “teachers don’t support my plans,” “feeling guilty about going to college” and “lack of study skills.”

In addition, it was determined that only the likelihood and difficulty subscales would be used in this study. The likelihood scale provides a measure of the types of barriers students perceive, while the difficulty subscale is an indication of coping efficacy, with higher scores indicating a greater perceived ability to overcome or handle the barriers.

Child and Adolescent Social Support Scale (CASSS; Malecki, Demaray, & Elliott, 2000): The CASSS was developed to provide a comprehensive assessment of social support. The authors defined social support as a person’s perception of general or specific support which either helps overall functioning and/or acts as a shield against negative outcomes (Malecki, Demaray, & Elliott, 2004). The full measure assesses support from parents, teachers, classmates, close friends, and school.

The CASSS is appropriate for use with 3rd through 12th grade students. Each subscale has 12 items, with three items in each scale related to one of four types of support: emotional, instrumental, informational, and appraisal. Emotional support constitutes feeling trusted and loved; instrumental support is related to resource (e.g., financial, time) provision; informational support focuses on giving advice; and appraisal support relates to provision of constructive feedback. In the original instrument, students rated each item in two ways. First, they rate how often (frequency) they perceive the type of support, using a six-point, Likert-type scale (i.e., 1 = never, 2 = almost never, 3 = some of the time, 4 = most of the time, 5 = almost always, 6 = always). Second, they rate the importance of the type of support using a three-point scale (i.e., 1 = not important, 2 = important, 3 = very important). Scoring for the CASSS is completed by adding the frequency total scores for each scale and then adding the totals together for a general measure of social support. Individual subscales (e.g., parents, peers) can be used as well for measures of support from specific populations. For this study, only the frequency scales were used.

Malecki et al. (2004) compiled reliability and validity results for the CASSS. Reliability estimates were collected based on three diverse middle school samples (N 's = 515, 263, and 125). Coefficient alphas for the total scales ranged from .96 - .97 for frequency. For the frequency subscales, coefficient alphas ranged from .92-.96. In addition, test-retest reliability resulted in coefficient alphas of .75-.78 for the total frequency scales over an 8-10 week period. The CASSS also was compared to various measures of social support. With middle school students, the researchers found moderate

levels of correlations with two other well known social support scales. Since their initial studies, Malecki and her associates have utilized the CASSS in a variety of studies with elementary, middle, and high school students.

For this study, only the parent and school frequency subscales were utilized. Research (e.g., Lapan et al., 2003; Nauta & Kokaly, 2001) on social support for middle school students indicates that family and school support are the most important sources for this age group. Scores can range from 12 – 72 for each frequency score, with total scores ranging from 24 – 144.

College-Going Outcome Expectations Scale (CGOES): This instrument was created by the researcher specifically for this study. The purpose of the instrument is to examine the outcome beliefs for college-going. A review of the literature identified no outcome measures for college-going designed for use with middle school students. Existing measures, such as the Middle School Career Decision-Making Scale (Fouad & Smith, 1997), were not found to be appropriate measures related to furthering one's education. In order to create the stems for this measure, a review of the existing literature on outcome expectations was completed. Bandura (1997) proposed three domains for outcome expectations: material, social approval, and self-evaluation. He defined material as the physical effects, both positive and negative, that occur as a result of a given behavior. Examples of the material domain include finances, sensory experiences, and general outcomes. The social approval domain includes reactions from others such as interest, approval, and recognition. Finally, the self-evaluative domain encompasses the

inner feelings provoked by a given behavior. These might include self-satisfaction or positive and negative feelings of self-worth.

Recent research on outcome expectations (Shoffner, Newsome, & Barrio, 2004) has resulted in the creation of two additional outcome domains. The relational domain is comprised of items that focus on the effect that a given behavior has on relationships. Finally, the generative domain includes items related to giving back to others due to a given behavior. Stems in the CGOES represent each of these five domains. Once the stems were created for the survey, this researcher coded each stem into one of the five domains. Then, two additional researchers, both with expertise in outcome expectations, coded each item as well. One of these researchers and the primary researcher met to discuss the coding differences for 6 of the 29 stems. This resulted in slight wording changes for two of the stems and dropping one stem. Agreement through discussion was met for the other three items. Finally, a third expert in outcome expectations measurement read through the assessment to ensure that the survey was measuring outcome beliefs for college-going.

Twenty-eight items were included in the final version of this survey. Students respond to each item using a four-point Likert-type scale (1 = don't believe at all, 2 = somewhat believe, 3 = believe, 4 = definitely believe). Items are worded both negatively and positively, with negative items reverse coded during scoring. Examples of items measuring the physical domain include "I will be able to pay for college" and "I will not be able to take care of myself." Social approval items include "I will impress my friends" and "My family will not approve of me." For the self-evaluative domain, "I will

be stressed out a lot” and “I will be proud of myself” were included. Relational items include “I will not fit in with my friends at home” and “My parents will support my decision.” Finally, two generative items were included as well: “I will contribute more to society as a result of going to college” and “I will make other people’s lives better because of my college experiences.” A total score, ranging from 28 to 112 identifies strength of positive outcome beliefs related to college going, with higher scores indicating more positive perceptions about what would happen if the student were to attend college.

Demographics Survey: This short scale was created for the purposes of this study. The scale contains 17 questions that ask respondents about their age, gender, race, mother’s and father’s education level and current career, and educational plans and goals. In addition, one question asks the participant to list their relatives (by relationship, not name) who have attended college. This provides a broader perspective of college-going in the respondent’s family. Two questions ask the respondent to list people (again by relationship, not name) who have either supported or hindered their educational plans. Finally, two questions ask the participant to rate their likelihood of actually attending and completing college after high school. These questions relate to the background contextual influences and person inputs within the SCCT model.

Methods and Procedures

For the main study, participants were recruited from four middle schools in North Carolina. All seventh grade students in each school were invited to participate. This researcher went to each school and spoke to the students several days prior to data

collection. At that time, a brief introduction regarding the purpose of the study was read to each class (see Appendix E). Students had an opportunity to ask the researcher questions about the study. They then were given a consent form and a short parent survey to take home to their parents.

Several days later, this researcher returned to the school and collected the signed consent forms. Students who returned the consent form and parent survey then were given the surveys to complete during class time. A brief explanation of the directions was read to the students at that time (see Appendix F). Student assent forms (see Appendix C) were distributed at this time as well. This provided an opportunity for students to actively agree to participate in the study. Participants completed the surveys in class and this researcher remained in the class in order to answer questions. At the end of the data collection, the participants received a small gift as a thank-you for their participation. Surveys then were collected and taken from the school by the primary researcher. Students who did not return the consent form were given the time to read silently in the classroom. No penalty was given to those students who chose not to participate in the study.

Data Analyses

Figure 3 illustrates the data analyses applied to each research question in the main study. Factorial ANOVAs, chi-square tests of independence, and frequency data was determined using the SPSS Volume 12.0 (2003) computer software package. The structural equation modeling path analysis was completed through the use of the LISREL 8.5 (2004) computer software package.

Figure 3. Chart of Research Questions, Variables, and Analyses.

Research Question One: Is there a statistically significant mean difference in the scores for levels of perceived barriers of postsecondary educational pursuits for first-generation students as compared to non-first-generation students.

| | Independent Variables | Dependent Variable | Analysis |
|------|--|--------------------|------------------------|
| RQ1 | First-Generation Status Ethnicity Gender | PEB-R | Factorial ANOVA |
| RQ1A | First-Generation Status Gender Ethnicity | PEB-R | Descriptive Statistics |

Research Question Two: Is there a statistically significant mean difference in scores for levels of perceived family and school supports for postsecondary educational pursuits reported by first-generation students as compared to non-first-generation students?

| | Independent Variables | Dependent Variable | Analysis |
|-----|--|--------------------|-----------------|
| RQ2 | First-Generation Status Gender Ethnicity | CASSS | Factorial ANOVA |

Research Question Three: Is there a statistically significant mean difference in scores of college-going self-efficacy reported by first-generation students as compared to non-first-generation students?

| | Independent Variables | Dependent Variables | Analysis |
|-----|--|---------------------|-----------------|
| RQ3 | First-Generation Status Gender Ethnicity | CGSES | Factorial ANOVA |

Research Question Four: Is there a statistically significant mean difference in college-going outcome expectations reported by first-generation students as compared to non-first-generation students?

| | Independent Variables | Dependent Variables | Analysis |
|-----|--|---------------------|-----------------|
| RQ4 | First-Generation Status Gender Ethnicity | CGOES | Factorial ANOVA |

Research Question Five: Does the SCCT model provide a good fit for both first-generation and non-first-generation students?

| | Independent Variables | Dependent Variables | Analysis |
|-----|--|--|---|
| RQ5 | First-Generation Status Gender Ethnicity Perceived Barriers Perceived Family Support Perceived School Personnel Support Self-Efficacy Outcome Expectations Positive Outcome Expectations Negative Coping Efficacy | PEB-R CGOES CGSES CASSS Strength of Intentions | Structural Equation Modeling Path Analysis |

Pilot Study

Purpose

A pilot study was conducted as an initial investigation of the relationship between perceived barriers and social supports, college-going self-efficacy, outcome expectations, and educational expectations and aspirations. The purpose of this pilot study was to examine possible trends in the relationships between these variables, as well as investigate the readability and reliability of the instruments designed specifically for this study. In addition, it was hoped that this study would illuminate any issues with

understanding the directions and pinpoint any problems with the administration process.

Six research questions, specific to the pilot study, were investigated:

1. What is the reliability coefficient alpha for the College-Going Self-Efficacy Scale for this group of middle school students?
2. Based on an exploratory factor analysis, does the College-Going Self-Efficacy Scale appear to be comprised of one or two factors?
3. What is the reliability coefficient alpha for the College-Going Outcome Expectations Scale for this group of middle school students?
4. What is the reliability coefficient alpha for the PEB-Revised for this group of middle school students?
5. Are there any problems with the readability of any of the instruments (College-Going Self-Efficacy Scale; College-Going Outcome Expectations Scale; PEB; CASSS; Demographic survey)?
6. Are there any problems with the directions and administration process?

Three additional research questions, identical to those to be examined in the main dissertation study, also were explored to determine the viability of further study.

1. Is there a difference in levels of perceived barriers to postsecondary educational pursuits for first-generation students as compared to non-first-generation students?
2. Is there a difference in levels of perceived family and school supports to postsecondary education pursuits for first-generation students as compared to non-first-generation students?

3. Is there a difference in college-going self-efficacy for first-generation students as compared to non-first-generation students?

Methods and Procedure

The sample for the pilot study was sixth through eighth grade students involved in Boy and Girl Scouts. Contact was first made with regional directors of Boy Scouts and Girl Scouts. These directors reviewed the instruments used in the survey and then provided a list of Scout troops that might be willing to participate. Scoutmasters were contacted by phone and asked if they would be willing to allow their troop to participate. Eight Scout troops (four boy and four girl) were contacted. Two of the Girl Scout troops could not be included because they did not meet the age requirement. The other two groups agreed to participate. One Boy Scout troop leader declined the offer to participate, and two others initially agreed but had to withdraw due to scheduling complications. Ultimately, participants were recruited through contact with three local Scoutmasters. In return for allowing the data to be collected, this researcher offered to make a presentation on career planning for the participating Scout groups and provided a snack to participants on the day of data collection.

Depending on the Scout leader's requests, participants were given a packet containing a letter to their parents requesting permission for their child to participate in this study either on the day of the study or the week prior to the study. Scouts whose parents agreed to participate were given the survey packets during a Scout meeting and completed the packet at that time. All Scouts who were given the permission forms returned them signed by a parent (100% response rate). The researcher was present

during the administration of the survey packets. Snacks and a mousepad from CFNC were given to troop members who completed the packets; although no consequences existed for the Scouts who decided not to participate, all agreed to answer the survey questions. One male Scout was unable to complete the survey due to his attention disorder, so his answers were not included in the results.

Participants

The 22 participants ranged in age from 11 to 13, with a mean age of 11.59 years old ($SD = .67$). Thirteen females and 9 males participated in the study. Most of the participants were Caucasian ($n = 12$), followed by African American ($n = 6$), Multiracial ($n = 2$), Hispanic/Latino ($n = 1$), and other ($n = 1$). Of the participants, 7 indicated they were prospective first-generation college students, meaning that neither of their parents had any education beyond high school. All of the first-generation students were female.

Twenty of the participants (90.9%) indicated that they planned to enter college after high school, and all of the participants planned to graduate from high school. Specifically, 4 planned to attend a community college (18.2%), 7 planned to attend a four-year college (31.8%), and 9 planned to continue on to graduate school (40.9%). All of the first-generation students planned to enter college after high school, with three planning on going to community college, three planning on entering a four-year university, and one planning to continue on to graduate school. The participants had varied career goals, with teacher ($n = 5$), entering the Navy ($n = 3$), and lawyer ($n = 3$) being the most popular. Other career choices included FBI agent, nurse, football player, and doctor, among others. On a scale rating their perceived likelihood in actually going to

college, the mean score was 8.68 out of ten ($SD = 2.01$). The participants rated the likelihood of graduating from college on a 10-point scale as well ($\text{mean} = 8.23$, $SD = 2.11$), indicating a high perceived likelihood of persisting in college.

Results

College-Going Self-Efficacy Scale. Research questions one and two for the pilot study focused on the CGSES because it was created by the researcher for the purposes of this study. Descriptive statistics and the coefficient alpha for this survey are presented in Table 1.

Table 1. Descriptive Statistics and Reliability (Cronbach's alpha) for the CGSES Scales – Attendance, Persistence, and Total ($n = 22$).

| Scale | Possible Score Range | Number of Items | Mean | SD | Skewness | Alpha |
|-------------------|----------------------|-----------------|-------|-------|----------|-------|
| CGSES Attendance | 15 - 60 | 15 | 45.77 | 5.81 | -1.09 | .81 |
| CGSES Persistence | 16 – 64 | 16 | 50.82 | 7.66 | -.56 | .92 |
| CGSES Total Scale | 31 – 124 | 31 | 96.59 | 12.10 | .67 | .92 |

Note. CGSES = College-Going Self-Efficacy Scale

The mean scores for the subscales indicated that the respondents had fairly high college-going self-efficacy beliefs. This result suggests that, for this group of middle school students, they believe they can complete the tasks needed to both attend and complete college. For both of the subscales, as well as the total scale, the reliability alpha coefficients appeared adequate. One item on the attendance scale, “I can choose the best college for me, even if my parents feel I made the wrong choice,” appeared to correlate poorly with the other items on the scale. In addition, the Cronbach's alpha raised to .83 if this item was deleted. It is the only item that had a complex sentence structure, so it may

be that the wording made it too difficult to understand. The item was dropped for the main study.

An examination of the items provided information about the themes for which these students had the lowest self-efficacy beliefs. For the attendance scale, the questions relating to the *financial* aspect of college-going were rated the lowest (i.e., not at all sure to somewhat sure). This result indicates that, even for young middle school students, uncertainty exists about being able to afford college. On the other hand, these students appeared much more confident about their *family's support* (attendance) for college-going and their *ability to complete the work* in college (persistence). They also appeared confident about being able to *make decisions* related to college-going and *to take care of themselves* once they arrived at college.

Participants reported that both the directions and the overall survey questions were either clear or very clear, indicating adequate readability for use with middle school students. Nearly all of the respondents reported that none of the questions were confusing to them, and all but one felt that the length of this survey was just right. It took the participants approximately 5 minutes to complete this survey.

An exploratory factor analysis was conducted to determine whether college-going self-efficacy did indeed break into the two components of attendance and persistence. Because of the small number of participants in the pilot study, a principal components analysis using a varimax rotation was conducted. A two-factor approach was attempted. A liberal item-to-assignment rule (i.e., .30 or more and .25 or less) was utilized to determine factor loadings. Twelve components clearly loaded onto factor one and eight

clearly loaded onto factor two. Of the remaining items, seven loaded nearly equally on both factors and four seemed not to load on either factor.

Of the twelve components that loaded onto factor one, 10 were from the persistence subscale. This suggests that persistence may be a separate factor from attendance in college-going self-efficacy. The two attendance items that loaded onto factor one were “I can make an educational plan that will prepare me for college,” and “I can make my family proud of my choices after high school.” Of the eight components that loaded onto factor two, six were from the attendance subscale. The two items from the persistence scale that loaded onto factor two were “I could get A’s and B’s in college” and “I could fit in at college.” Thus, there was at least minimal support for the scale as constructed. Because of the small number of participants in the pilot study, no changes were made to the CGSES at this time. After the main study, a second exploratory factor analysis was conducted to determine the appropriateness of separating college-going self-efficacy into two separate factors.

College-Going Outcome Expectations Scale. Since this was a new scale developed for use in this study, the CGOES was the focus of the third research question for the pilot study. Descriptive statistics and the coefficient alphas for this survey are presented in Table 2.

Table 2. Descriptive Statistics and Coefficient Alphas for the CGOES Positive and Negative Outcomes Scales ($n = 22$).

| Scale | Possible Score Range | Number of Items | Mean | SD | Skewness | Alpha |
|----------------|----------------------|-----------------|-------|------|----------|-------|
| CGOES Positive | 13 – 52 | 13 | 47.09 | 5.77 | -1.07 | .78 |
| CGOES Negative | 15 – 60 | 15 | 24.18 | 8.17 | .90 | .86 |

Note. CGOES = College-Going Outcome Expectations Scale.

The CGOES is divided into two types of outcome expectations. Positive outcome beliefs are those that are based on good things occurring as a result of going to college. Negative outcome beliefs are those that are based on poor outcomes as a result of going to college. Originally, the intent of the scale was to reverse score the negative outcomes and total the 28 items for a single scale score. This idea was based on the belief that the negative beliefs were opposites, or inversely related, to the positive beliefs. In other words, the higher a participant's positive outcome beliefs, the lower the negative beliefs would be. Based on the results from the pilot study, it appears that negative and positive beliefs are related, yet unique from each other. When the two types of beliefs were separated into two separate subscales, the inter-item correlations within each scale suggested a better fit and the reliability coefficient alphas rose dramatically. In addition, the two scales appear not to be related based on a Pearson Product-Moment Correlation, $r(21) = .047, p = .84$. Therefore, the results are listed using the concept of two separate subscales rather than a single score for outcome beliefs.

Generally, higher scores on the positive outcome belief scale reflect more *positive* college-going outcome expectations. Higher scores on the negative outcome belief scale indicate more *negative* outcome expectations. For these participants, it appears that they

have high perceived positive outcome beliefs and low negative beliefs related to college-going. A review of the individual scores from the participants provided more details about these beliefs. For all but one participant, comparable scores were higher for the positive outcome beliefs scale than for the negative beliefs scale. However, higher scores for individuals on the positive outcomes scale did not necessarily mean low scores on the negative outcomes scale. For some students, an inverse relationship between negative and positive beliefs was evident; for others, mixed results occurred instead (e.g., fairly high positive and negative beliefs; high positive and mid-level negative beliefs). These individual results provide some evidence for the separation of the outcome scale into two separate measures.

An analysis of the reliability coefficient alphas led to an interesting result as well. The negative outcomes scale appears to have a higher coefficient alpha than does the positive outcomes scale. When one item (I will impress my friends) was removed from the positive outcomes scale, however, the reliability coefficient rose to .84. It is possible that impressing one's friends is not a positive outcome for some adolescents. Adolescents desire to fit in and be accepted by their peer groups, and impressing them may make them feel as if they stand out from their peers instead. Therefore, this item may not be a good measure of positive outcome beliefs.

Based on an analysis of the minimum and maximum scores on individual items in the CGOES, the participants appeared to have variability in their answers. This suggests individual differences in outcome beliefs for these participants. In addition, no single type of outcome belief (i.e., physical, social approval, self-evaluative, relational, generative)

appeared to be rated higher than any other. For example, some of the outcome beliefs representing the physical domain had high positive mean scores and some had high negative means, while others had low positive or negative mean scores. This result suggests that no outcome belief domain is more salient than the others.

Perception of Educational Barriers Scale – R. The PEB-R was the focus of the fourth research question for the pilot study because a number of items were added to the original instrument. Descriptive statistics and the coefficient alpha for this survey are presented in Table 3.

Table 3. Descriptive Statistics and Coefficient Alpha for the PEB-R Likelihood and Difficulty to Overcome Scales ($n = 22$).

| Scale | Possible Score Range | Number of Items | Mean | SD | Skewness | Alpha |
|----------------|----------------------|-----------------|-------|-------|----------|-------|
| PEB Likelihood | 45 – 180 | 45 | 85.91 | 17.69 | .11 | .90 |
| PEB Difficulty | 45 – 180 | 45 | 81.41 | 20.04 | .20 | .93 |

Note. PEB-R = Perception of Educational Barriers Scale – Revised.

Generally, higher scores on the likelihood scales suggest that the respondents perceive a higher likelihood of encountering barriers to furthering their education. The mean score on this scale indicates that these students perceived a relatively low amount of barriers. Generally, higher scores on the difficulty to overcoming these barriers scale indicate that respondents believe they would have great difficulty dealing with these perceived barriers if they were to occur. The mean score for these participants suggests a high level of coping efficacy, indicating a strong belief that they would be able to overcome barriers to education. The reliability coefficient alphas for both scales appear to

be adequate. An examination of the individual items on the PEB-R Likelihood scale indicated that, for all the items, there was a range in answers. Fifteen of the 45 barriers had mean scores of 2.0 or above, indicating a relatively high perception of encountering this barrier to furthering their education. It should be noted that none of the barriers had a mean above 3.0 on a four-point scale. Nonetheless, an examination of the barriers with mean scores at or above 2.0 identified several barrier themes that seemed to be most worrisome for this group of participants. All three of the barriers under the theme of *low-income/finances* had higher means. Both of the barriers in the *negative role models* theme had high means. This is important because it is a barrier theme that was not in the original PEB-R and was added for the purposes of this research. Four of the five barriers in the *family issues* theme had mean scores above 2.0 as well. Other barrier themes that were evident include one of the three in the *lack of intelligence* theme, one of three in the *unsafe environment* theme, one of three in the *not fitting in* theme, one of six in the *lack of social support* theme, one of six in the *discrimination* theme, and one of the two in the *lack of long-term guidance* theme. The *unsafe environment* and *lack of long-term guidance* themes were both new additions to the PEB-R for the purposes of this study as well. Three themes, *uncertainty about career*, *lack of role models*, and *being prepared for college* had no items with means above 2.0.

Responses from the evaluation of the PEB-R indicated that most participants believed that both the directions and the items were either clear or very clear. A small percentage ($n = 4$) indicated difficulty with one or more of the items. One respondent felt that there were too many “big words” in this survey. Others indicated several items that

they felt were confusing to them (e.g., sex discrimination). No single item was listed as confusing by more than two participants. Overall, most of the participants felt that this survey was too long and indicated that it took them about 10 or more minutes to complete it.

Child and Adolescent Social Support Scale. The CASSS (Malecki et al., 2000) was an existing instrument, so the pilot study did not focus on evaluating its reliability and structure. Descriptive results and the reliability coefficient alpha of the CASSS from this group of middle school students are included in Table 4.

Table 4. Descriptive Statistics and Reliability of the CASSS, Parent and School Personnel Scales, Frequency and Importance Ratings ($n = 22$).

| Scale | Possible Score Range | Number of Items | Mean | SD | Skewness | Alpha |
|-------------------|----------------------|-----------------|-------|-------|----------|-------|
| Parent Frequency | 12 – 72 | 12 | 54.95 | 13.19 | -1.39 | .96 |
| School Frequency | 12 – 72 | 12 | 53.36 | 13.34 | -.84 | .93 |
| Parent Importance | 12 – 36 | 12 | 28.55 | 4.69 | .22 | .85 |
| School Importance | 12 – 36 | 12 | 28.82 | 5.14 | -.13 | .88 |

Note. CASSS = Child and Adolescent Social Support Scale.

The mean scores indicate that these students perceive receiving support from parents and school personnel most of the time. Support from parents and school personnel are perceived as important for these students. The reliability alpha coefficient suggests adequate reliability for these scales with this population. The participants reported that both the directions and the survey questions on the CASSS (Malecki et al., 2000) were either clear or very clear, with no items being listed as confusing to them.

Most felt that the survey length was just right and indicated that it took them about five minutes to complete the survey.

Overall readability and administration: Questions five and six for the pilot study focused on the overall survey process. Several issues were revealed based on written evaluations of the surveys from the participants along with verbal feedback during the survey administration. With very few exceptions, the participants indicated that the directions and readability of each survey were clear or very clear. The total time to complete the survey ranged from 25 minutes to 1-hour. By a wide margin, the PEB-R and the demographics surveys took the longest to complete. Overall, the only scale that a majority of participants rated as too long was the PEB-R.

Several administrative concerns arose during the pilot study as well. The participants indicated being confused by the surveys (i.e., PEB-R and CASSS) that required them to answer each item two ways. Most of the participants asked for verbal clarification during these parts of the survey administration process. For the full study, the oral and written directions were changed to better explain this procedure.

In addition, the students indicated confusion related to the coping efficacy scale of the PEB-R. They seemed to have struggles understanding the concept of rating the difficulty in overcoming a barrier. It may be that middle school students are unable to comprehend such an abstract concept. This confusion led to many of the participants either selecting the same rating for each item as they did for the likelihood scale, or to selecting the same rating for every item on the difficulty scale (i.e., answering “one” for each item, indicating no difficulty in overcoming the barrier). Participants from the third

Scout group were asked to verbally explain the difficulty scale to the researcher as a way to understand the interpretation of this scale by middle school students. These participants explained the scale as a rating of the difficulty of the barrier occurring (e.g., “sometimes difficult,” “not difficult for this to happen”). This explanation is different than the intent for this scale, which is to have participants rate the perceived level of difficulty in overcoming this barrier.

A question also arose regarding the need for the CASSS Importance scales. These scales ask the participants to rate the importance of the type of perceived support from parents and school personnel. Nearly all of the participants rated all of the types of support as equally important to them, so there was very little variability in their responses. Because it appears that both parent support and support from school personnel are important to middle school students, it may be that the importance scale was not needed for the full study.

Another concern that arose was related to parent education level and parent occupation. Several students noted that they did not know if their parents had graduated from college or what job they currently held. Students were instructed to answer to the best of their ability and conservative estimates of parent education level were used (i.e., if the student indicated even some possible college experience for one or both parents, that student was not classified as first-generation). For the main study, a short parent survey (Appendix D) was added in order to obtain more accurate information about parent education level and parent occupation. This survey was coded to match the participant survey.

Finally, a concern arose regarding the college knowledge of the participants. Although the surveys seemed to adequately identify the belief system of the participants, it did not identify whether the students understood what was needed to get into and be successful in college. This information might be important when examining the differences between first-generation students and their peers. Therefore, for the main study, one forced-response and three open-ended questions were added to the end of the demographics form. The first question asks participants if they have ever been on a college campus (yes or no). The first open-ended question asks students to indicate what, besides good grades, they believe is needed to get into college, and the second asks students what they believe people do in college. The final question asks participants what they believe, in addition to good grades, is needed to graduate from college. It was hoped that these questions will provide an indication of the general college knowledge of middle school students and help identify differences in this knowledge by first-generation status.

Main study research questions. This section describes the results of the three main study questions that were addressed in the pilot study. Given the small number of participants, the goal was not to make conclusions about the results but rather to examine trends in the results to support the need for further research. In addition, attention was paid to any problems with the administration and evaluation process.

Research question 1: Is there a statistically significant mean difference in the scores for levels of perceived barriers to postsecondary educational pursuits for first-generation students as compared to non-first-generation students? Mean results from the

participants on the PEB-R-Likelihood scale are presented in table 5. Higher scores on the PEB-R Likelihood scale indicate more perceived barriers.

Students who participated in the pilot study appeared to have similar means of perceived education barriers. The first-generation students, all of which were female, and the minority students tended to have more variation in their responses than did the male, Caucasian, or non-first-generation students. This result suggests that females, minority students, and first-generation students may have more diverse perceptions of barriers to college than do their peers. Further study with a larger number of participants provided a more robust test of any differences between first-generation students and their peers.

Table 5. Mean Results from the PEB-R Likelihood Scale, by First-Generation, Gender, and Race.

| Variable | N | Mean | SD |
|----------------------|----|-------|-------|
| Non-First-Generation | 15 | 87.27 | 12.36 |
| First Generation | 7 | 83.00 | 26.96 |
| Male | 9 | 84.00 | 12.40 |
| Female | 13 | 87.23 | 20.99 |
| Caucasian | 12 | 87.50 | 14.68 |
| Other Race | 10 | 84.00 | 21.45 |
| PEB-R Total | 22 | 85.91 | 17.69 |

Note. PEB-R = Perception of Educational Barriers Scale – Revised.

Research question 2: Is there a mean difference in scores for levels of perceived family and school supports to postsecondary education pursuits for first-generation students as compared to non-first-generation students? Mean results from the

participants on the CASSS-frequency scale are presented in Table 6. Higher scores indicate more perceived support.

No clear differences were evident between participant answers based on parent education level, gender, or ethnicity. An examination of the individual surveys revealed one outlier among the 'Caucasian' participants. This participant viewed support much lower than any of the other participants, therefore lowering the mean score for the group. When this outlier was removed, the mean support scores became nearly identical to those of the 'Other Race' group. In addition, most of the groups had a fairly large standard deviation, indicating good variability in their responses. Analysis of these groups in the larger main study provided a better understanding of differences in perceived levels of social support amongst middle school students.

Table 6. Mean Results from the CASSS-Frequency Parent and School Personnel Scales, by First-Generation, Gender, and Race.

| Variable | N | Mean | SD |
|----------------------------|----|-------|-------|
| Parent Frequency | 22 | 54.95 | 13.19 |
| Non-First-generation | 15 | 53.00 | 13.13 |
| First-Generation | 7 | 59.14 | 13.32 |
| Male | 9 | 54.56 | 15.17 |
| Female | 13 | 55.23 | 12.29 |
| Caucasian | 12 | 48.83 | 13.86 |
| Other Race | 10 | 62.30 | 7.85 |
| School Personnel Frequency | 22 | 53.36 | 13.34 |
| Non-First-generation | 15 | 50.40 | 12.79 |
| First-Generation | 7 | 59.71 | 13.14 |
| Male | 9 | 50.33 | 13.76 |
| Female | 13 | 55.46 | 13.18 |
| Caucasian | 12 | 49.28 | 14.28 |
| Other Race | 10 | 58.60 | 10.50 |

Note. CASSS = Child and Adolescent Social Support Scale.

Research question 3: Is there a difference in college-going self-efficacy for first-generation students as compared to non-first-generation students? Mean results from the CGSES attendance and persistence scales are presented in Table 7. Higher scores on the CGSES scales represent stronger college-going self-efficacy beliefs.

No apparent differences between means for attendance or persistence were evident in this sample. The participants seemed to answer similarly regardless of parent education level, gender, or race. Given the small sample size, this is not surprising. The full study may provide more directionality of differences. First-generation students did

tend to have more variability in their answers than did their peers, suggesting possibly more diversity of college-going beliefs in this group.

Table 7. Mean Results from the CGSES Attendance and Persistence Scales, by First-Generation, Gender, and Race.

| Variable | N | Mean | SD |
|----------------------|----|-------|------|
| Attendance | 22 | 45.77 | 5.81 |
| Non-First-generation | 15 | 46.33 | 4.01 |
| First-Generation | 7 | 44.57 | 8.83 |
| Male | 9 | 45.89 | 4.83 |
| Female | 13 | 44.69 | 6.59 |
| Caucasian | 12 | 45.67 | 6.62 |
| Other Race | 10 | 45.90 | 4.99 |
| Persistence | 22 | 50.82 | 7.66 |
| Non-First-generation | 15 | 49.80 | 7.56 |
| First-Generation | 7 | 53.00 | 8.00 |
| Male | 9 | 50.67 | 6.91 |
| Female | 13 | 50.92 | 8.42 |
| Caucasian | 12 | 49.75 | 7.75 |
| Other Race | 10 | 52.10 | 7.77 |

Note. CGSES = College-Going Self-Efficacy Scale.

Feasibility for Further Study

The preliminary analyses of the pilot study suggest that the use of these instruments to study college-going beliefs in middle school students seems appropriate. The scales displayed high reliability coefficients, indicating that they have good internal consistency. The students seemed to have good variance in their responses, indicating

that different participants had different college-going beliefs. This aspect is important because it adds viability to studying these beliefs in middle school students.

An examination of first-generation students as compared to their peers did not indicate significant mean differences between the two groups on college-going beliefs, but this may have been because of the small number of participants in general, and of first-generation students in particular, that were part of the pilot study. It seems that studying this population is still warranted since previous research has found differences in these beliefs systems.

CHAPTER IV

RESULTS

Results of this study are discussed in three separate sections. First, a detailed description of the sample is provided. Second, reliability results for each instrument are described. Third, results of the statistical analyses for each research question are provided.

Description of the Sample

Seventh grade students from four middle schools located in three separate counties in central North Carolina were offered the opportunity to participate in this study. All four schools had a traditional middle school curriculum; three were public schools and one was a public charter school. The schools were carefully selected based on having a high percentage of students on free or reduced lunch and/or a high minority student population; both lower SES and minority status are characteristics of prospective first-generation college students. A total of 275 students returned parental consent forms and participated in the survey; three of these did not indicate parent education level and therefore had to be eliminated from the study, leaving a total sample size of 272 seventh grade students. At each school, slightly more females than males participated in the survey, giving a total of 118 males and 154 female participants. The average age of the participants was 12.65 ($SD = .61$, range = 12 – 14 years).

Participation rates at each school ranged from 29.6% to 43.2%, with an average participation rate of 37.66%. The low response rate may be because students had to take home consent forms to be signed by a parent and then return those forms to the school the next day. Many students forgot to return the consent forms in time to complete the survey. In addition, at two of the schools, students had to miss an elective class in order to participate in the survey, which may have resulted in fewer students selecting to participate.

Of this sample, 109 participants were prospective first-generation college students. As stated in previous chapters, prospective first-generation students were classified as those where neither parent had more than a high school education. If one or both parents had some college education, regardless of degree status, the student was classified as non-first-generation. The number of first-generation participants varied by school, ranging from 7 at School 1 to 61 at School 2. The average education level for both the mothers and fathers of all the participants was just above a high school diploma ($M = 4.24$ out of 7 for both, $SD = 1.66$ for mother education level, $SD = 1.59$ for father education level). In some cases, the parent survey was not completed or was incomplete, so specific education information was not available for all participants. In those cases, first-generation status was obtained from the student survey – that is, if the student indicated a parent had attended college, they were classified as non-first-generation even though the specifics of the parent education level were unavailable. The educational attainment of the parents is detailed in Table 8.

Table 8. Educational Attainment of Participants' Parents.

| Education Level | <u>n</u> | % of Sample |
|---------------------------------|----------|-------------|
| Mother | | |
| Less Than 7 th Grade | 29 | 10.7 |
| Less Than 9 th Grade | 13 | 4.8 |
| Some High School | 35 | 13.9 |
| High School Graduate | 39 | 14.3 |
| Some College/Community College | 87 | 32.0 |
| Four-Year College Graduate | 35 | 12.9 |
| Graduate School | 14 | 5.1 |
| Don't Know/Not Reported | 20 | 7.4 |
| Total | 272 | |
| Father | | |
| Less Than 7 th Grade | 19 | 7.0 |
| Less Than 9 th Grade | 14 | 5.1 |
| Some High School | 30 | 11.0 |
| High School Graduate | 62 | 22.8 |
| Some College/Community College | 56 | 20.6 |
| Four-Year College Graduate | 30 | 11.0 |
| Graduate School | 18 | 6.6 |
| Don't Know/Not Reported | 43 | 15.8 |
| Total | 272 | |

Note. Information was gathered from the parent survey.

The four schools differed in size and location. School 1 was a public charter school located in a large, urban city. Approximately 96 7th graders were enrolled at the school. School 2 was a large public school located in a smaller city and had 250 7th graders enrolled. Schools 3 and 4 were both public schools in the same county and represented all of the 7th grade students in that county. School 3 had 216 7th graders and School 4 had 166 7th grade students. The ethnic representation of the sample participants from each school as compared to the entire school population is reported in Table 9.

Table 9. Ethnic Representation of Participants in Study ($n = 272$) as Compared to the Entire 7th Grade Student Population in Each School.

| | Ethnicity | Study Participants % | Whole School % |
|------------------------------------|---------------------|----------------------|----------------|
| School 1 $n = 40$ $N = 96$ | African American | 45.0 | 64 |
| | Asian | 2.5 | 1 |
| | Caucasian | 40.0 | 32 |
| | Hispanic/Latino | 5.0 | 2 |
| | Other (Multiracial) | 2.5 | 1 |
| School 2 $n = 108$ $N = 250$ | African American | 45.4 | 52 |
| | Asian | 1.9 | .1 |
| | Caucasian | 12.0 | 15 |
| | Hispanic/Latino | 35.2 | 33 |
| | Other (Multiracial) | 5.5 | 0 |
| School 3 $n = 64$ $N = 216$ | African American | 14.1 | 13 |
| | Asian | 1.6 | 1 |
| | Caucasian | 68.8 | 66 |
| | Hispanic/Latino | 9.4 | 19 |
| | Other (Multiracial) | 4.7 | 1 |
| School 4 $n = 60$ $N = 166$ | African American | 11.7 | 23 |
| | Asian | 1.7 | 3 |
| | Caucasian | 33.3 | 39 |
| | Hispanic/Latino | 31.7 | 37 |
| | Other (Multiracial) | 21.7 | 0 |

In the sample, there was a large representation of Caucasian, African American, and Hispanic/Latino students that closely mirrored the entire school population at each site. When the sample is broken down by first-generation status, however, there was an underrepresentation of Caucasian first-generation students. Ethnic breakdown by first-generation status is reported in Table 10.

Table 10. Ethnic Representation by First-Generation Status for Entire Sample.

| Ethnicity | First-Generation <u>n</u> = 109 | Non-First-Generation <u>n</u> = 162 | Total Sample <u>n</u> = 271 |
|------------------|------------------------------------|--|--------------------------------|
| African American | 24 | 59 | 83 |
| Caucasian | 15 | 78 | 93 |
| Hispanic/Latino | 58 | 7 | 65 |
| Other | 12 | 18 | 30 |

On the survey, participants were asked to indicate their specific ethnicity from a list of 7 options. For several of the categories, however, there were very few participants. So, for the purposes of data analysis, an “Other Ethnicity” category was created. This category includes Native American (n = 1), Asian American (n = 5), multiracial (n = 17), and other (n = 7). No assumptions were made regarding the similarities of the students in this group; the combination was done for convenience and statistical purposes only. As a result, statistics regarding this group should be interpreted carefully.

The current math class and prospective career plans of participants were reported as well. Higher level math courses in middle school are considered a gateway to higher education (Warburton et al., 2001) and researchers have recommended that all students complete algebra no later than the 8th grade in order to be best prepared for college. The current math classes of the participants is included in Table 11. In this sample, more non-first-generation students were in higher levels of math than were first-generation students. No first-generation students were enrolled in algebra in the 7th grade, and few were enrolled in pre-algebra.

Table 11. Current Math Class of Participants by Percentages, by First-Generation Status and Gender.

| | General Math % | Pre-Algebra % | Algebra % |
|------------------|----------------|---------------|-----------|
| Males | | | |
| First-Generation | 88.5 | 11.5 | 0 |
| Non-First | 59.4 | 37.5 | 3.0 |
| Females | | | |
| First-Generation | 93.0 | 7 | 0 |
| Non-First | 51.5 | 41.2 | 7.2 |

Career interests were varied for all students. For first-generation male participants, 20 different career interests were listed. The most popular careers for this group were professional athlete ($\underline{n} = 17$), doctor ($\underline{n} = 4$), and mechanic ($\underline{n} = 3$). Ten participants indicated being unsure about their career plans. For non-first-generation males, 28 different careers were listed. The most popular for this group were professional athlete ($\underline{n} = 13$), mechanic ($\underline{n} = 5$), dentist ($\underline{n} = 5$), and engineer ($\underline{n} = 5$). Five students reported being uncertain about their future plans. For females, there was wide variability in career choices as well. Female first-generation participants listed 18 career interests. For this group, doctor ($\underline{n} = 13$), lawyer ($\underline{n} = 9$), and actor/singer ($\underline{n} = 5$) were the most popular. Five students reported being unsure about their future career. Finally, for non-first-generation females, 29 different career choices were included. The most popular choices were doctor ($\underline{n} = 16$), lawyer ($\underline{n} = 15$), and teacher ($\underline{n} = 9$), with 9 students reporting being uncertain about their future career plans.

Students also indicated their future educational plans. Choices ranged from entering high school to completing graduate school, and students were asked to select

their highest educational goal. Nearly all participants indicated plans to attend some type of school after high school, and about half anticipated earning a graduate degree. A list of the results is detailed in Table 12.

Table 12. Highest Educational Goals of Participants ($n = 268$), Reported in Percentages.

| Educational Goal | Total Percentage | First-Gen. | Non-First |
|-------------------------------|------------------|------------|-----------|
| Enter High School | 1.1 | 2.8 | 0 |
| Graduate High School | 4.4 | 6.4 | 3.1 |
| Enter Trade School | .7 | .9 | .6 |
| Graduate Trade School | 1.1 | 2.8 | 0 |
| Enter Community College | 2.2 | .9 | 3.1 |
| Graduate Community College | 4.0 | 6.4 | 2.5 |
| Enter Four-Year University | 4.0 | 3.7 | 4.4 |
| Graduate Four-Year University | 30.1 | 26.6 | 33.3 |
| Enter Graduate School | 9.9 | 14.7 | 6.9 |
| Complete Graduate School | 40.4 | 34.9 | 45.3 |
| Other | .4 | 0 | .6 |

A comparison by first-generation status suggested a difference in educational goals. First-generation students had a mean educational goal of 6.92 ($SD = 2.51$; just below graduating from a four-year university) while non-first-generation students had a mean educational goal of 7.59 ($SD = 1.83$; between graduating from a four-year university and entering graduate school). A one-way ANOVA was completed to determine if this difference was statistically significant ($F = 6.35$, $df = 1$, $p < .05$, $\eta^2 = .02$). This suggests that first-generation students were slightly less likely to report an

intention to go to and/or graduate from a four-year university or graduate school than were non-first-generation students.

Instrumentation

Four instruments plus a demographic survey were used in this study. Two of the instruments, the CGSES and CGOES, were created specifically for this study, and a third instrument, the PEB-R, was revised for use in this study. The internal consistency values for each of the instruments (and their subscales) are reported in Table 13. For each of these instruments, the reported internal consistencies were quite high.

Table 13. Reliability Coefficients (Cronbach's Alpha) for the Instruments Used in this Study.

| Scale | <u>n</u> | # of Items | Alpha |
|------------------|----------|------------|-------|
| CGSES | | | |
| Attendance | 271 | 14 | .88 |
| Persistence | 271 | 16 | .90 |
| Total Scale | 271 | 30 | .94 |
| PEB-R Likelihood | 267 | 45 | .93 |
| CASSS | | | |
| Parent | 269 | 12 | .94 |
| School Personnel | 269 | 12 | .95 |
| Total Scale | 269 | 24 | .96 |
| CGOES Positive | 255 | 15 | .84 |
| CGOES Negative | 255 | 13 | .87 |

Based on SCCT, the surveys should all be correlated with each other. The self-efficacy scores (CGSES) should be positively related to support (CASSS) and positive outcome expectations (CGOES Positive), and negatively related to barriers (PEB-R) and

negative outcome beliefs (CGOES Negative). Barriers should be negatively related to support and positive outcomes and positively related to negative outcome beliefs.

Support should be positively related to the positive outcomes and the reverse should be true for the negative outcome beliefs. Correlation matrices were computed to examine the actual relationships between means of the scales for both first-generation and non-first-generation students. The matrices are presented in Tables 14 and 15.

Table 14. Correlations of Means Between Measures ($n = 108$) for First-Generation Students.

| | cgses-a | cgses-p | cgses-t | peb-r | casss-p | casss-s | cgoes-p | cgoes-n |
|---------|---------|---------|---------|--------|---------|---------|---------|---------|
| cgses-p | .80** | | | | | | | |
| cgses-t | .95** | .95** | | | | | | |
| peb-r | -.33** | -.25 | -.30** | | | | | |
| casss-p | .36** | .43** | .42 | -.12 | | | | |
| casss-s | .24* | .29** | .28 | -.08 | .71** | | | |
| cgoes-p | .53** | .54** | .56** | -.38** | .48** | .47** | | |
| cgoes-n | .10 | .14 | .13 | .09 | .21* | .22** | .05 | |

Note. ** = Correlation is significant at the .01 level.

* = Correlation is significant at the .05 level.

Note. CGSES-A = College-Going Self-Efficacy Scale – Attendance; CGSES-P = College-Going Self-Efficacy Scale – Persistence; CGSES-T = College-Going Self-Efficacy Scale – Total Scale; PEB-R = Perceptions of Educational Barriers – Revised, Likelihood Subscale; CASSS-P = Child and Adolescent Social Support Scale, Parent Support; CASSS-S = Child and Adolescent Social Support Scale, School Personnel Support; CGOES-P = College-Going Outcome Expectations Scale – Positive Outcomes; CGOES-N = College-Going Outcome Expectations Scale – Negative Outcomes.

Table 14 provides some evidence of convergent and divergent validity for use of these scales with first-generation students. As predicted, the self-efficacy scores were positively and significantly related to each other, the social support scores, and the positive outcome beliefs. Self-efficacy also was negatively and significantly related to perceived barriers. No significant relationship was found between self-efficacy scores

and negative outcome beliefs. Perceived barriers also were negatively and significantly related to positive outcome beliefs. In addition, perceived social support was positively and significantly related to positive outcome beliefs. Few significant relationships were found between negative outcome beliefs and other perceptions for first-generation students.

Table 15. Correlations of Means Between Measures ($n = 150$) for Non-First-Generation Students.

| | cgses-a | cgses-p | cgses-t | peb-r | casss-p | casss-s | cgoes-p | cgoes-n |
|---------|---------|---------|---------|--------|---------|---------|---------|---------|
| cgses-p | .80** | | | | | | | |
| cgses-t | .94** | .96** | | | | | | |
| peb-r | -.44** | -.51** | -.50** | | | | | |
| casss-p | .18* | .25** | .23** | -.32** | | | | |
| casss-s | .24** | -.33** | .31** | -.27** | .60** | | | |
| cgoes-p | .53** | .66** | .64** | -.48** | .34** | .32** | | |
| cgoes-n | -.30** | -.26** | -.30** | .29** | -.19* | -.20* | -.35** | |

Note. ** = Correlation is significant at the .01 level.

* = Correlation is significant at the .05 level.

Note. CGSES-A = College-Going Self-Efficacy Scale – Attendance; CGSES-P = College-Going Self-Efficacy Scale – Persistence; CGSES-T = College-Going Self-Efficacy Scale – Total Scale; PEB-R = Perceptions of Educational Barriers – Revised, Likelihood Subscale; CASSS-P = Child and Adolescent Social Support Scale, Parent Support; CASSS-S = Child and Adolescent Social Support Scale, School Personnel Support; CGOES-P = College-Going Outcome Expectations Scale – Positive Outcomes; CGOES-N = College-Going Outcome Expectations Scale – Negative Outcomes.

As indicated in Table 15, for non-first-generation participants, all of the relationships between constructs was significant and in the predicted direction. Unlike the first-generation participants (as reported in Table 14), the negative outcome measure was significantly related to all of the other measures for this group of participants. This again provides initial evidence of convergent and divergent validity for these measures.

An exploratory factor analysis of the CGSES was conducted to add to evidence of validity. The development of the scale was based on previous research that suggested that college-going self-efficacy was a combination of perceived ability to complete the tasks needed to arrive at college and stay there. For this study, those two aspects of self-efficacy were termed *attendance* and *persistence*. The exploratory factor analysis was conducted to determine if, indeed, two separate factors existed for college-going self-efficacy, or if a total score for this measure would be sufficient.

The CGSES had a total of 30 items, 14 of which were thought to measure attendance self-efficacy and 16 of which to measure persistence self-efficacy. The descriptive statistics for each item are listed in Table 16.

Table 16. Descriptive Statistics for CGSES, Individual Items (N = 271).

| Item | <u>M</u> | <u>SD</u> |
|--|--------------|-------------|
| Attendance Scale | 43.05 | 7.29 |
| I can find a way to pay for college | 2.86 | .96 |
| I can get accepted to a college | 2.89 | .94 |
| I can have family support for going to college | 3.61 | .78 |
| I can choose a good college | 3.41 | .78 |
| I can get a scholarship or grant for college | 2.72 | .89 |
| I can make an educational plan that will prepare me for college | 2.93 | .83 |
| I can make my family proud with my choices after high school | 3.58 | .69 |
| I can choose college courses that best fit my interests | 3.48 | .71 |
| I can pay for college even if my family cannot help me | 2.11 | .89 |
| I can get good grades in my high school math classes | 2.89 | .87 |
| I can get good grades in my high school science classes | 3.01 | .85 |
| I can choose the high school classes needed to get into a good college | 3.31 | .77 |
| I can know enough about computers to get into college | 2.82 | .94 |
| I can go to college after high school | 3.42 | .82 |
| Persistence Scale | 52.68 | 7.97 |
| I could pay for each year of college | 2.52 | 1.01 |
| I could get A's and B's in college | 2.79 | .94 |
| I could get my family to support my wish of finishing college | 3.62 | .65 |
| I could take care of myself in college | 3.56 | .70 |
| I could fit in at college | 3.24 | .79 |
| I could get good enough grades to get or keep a scholarship | 3.15 | .79 |
| I could finish college and receive a college degree | 3.36 | .78 |
| I could care for my family responsibilities while in college | 3.11 | .90 |
| I could set my own schedule while in college | 3.21 | .76 |
| I could make friends at college | 3.58 | .68 |
| I could get the education I need for my choice of career | 3.46 | .71 |
| I could get a job after I graduate from college | 3.54 | .66 |
| I would like being in college | 3.39 | .76 |
| I could be smart enough to finish college | 3.40 | .75 |
| I could pick the right things to study at college | 3.40 | .74 |
| I could do the classwork and homework assignments in college classes | 3.33 | .79 |

A principal component exploratory factor analysis with a varimax rotation method was conducted to determine the fit of the two factors. Six components had an eigenvalue over 1.0, although a significant reduction occurred after the first component. Because of the predicted factors in the scale, a two-factor approach was attempted. The results of this analysis are detailed in Table 17.

Table 17. Rotated Component Matrix, Principal Component Factor Analysis, Constrained to Two Factors.

| Item | Factor 1 “Attendance” | Factor 2 “Persistence” |
|--|--------------------------|---------------------------|
| I can find a way to pay for college | .78 | .18 |
| I can get accepted to a college | .70 | .26 |
| I can have family support for going to college | .66 | .04 |
| I can get a scholarship or grant for college | .64 | .23 |
| I can go to college after high school | .64 | .32 |
| <i>I could pay for each year of college</i> | .64 | .25 |
| I can choose the high school classes needed to get into a good college | .55 | .36 |
| <i>I could get A's and B's in college</i> | .55 | .45 |
| <i>I could get my family to support my wish of finishing college</i> | .53 | .14 |
| I can choose college courses that best fit my interests | .50 | .27 |
| I can choose a good college | .50 | .28 |
| I can make an educational plan that will prepare me for college | .46 | .41 |
| I can get good grades in my high school math classes | .46 | .39 |
| I can make my family proud with my choices after high school | .40 | .28 |
| I can know enough about computers to get into college | .35 | .33 |
| I can pay for college even if my family cannot help me | .35 | .24 |
| <hr/> | | |
| I could pick the right things to study at college | .23 | .71 |
| I could fit in at college | .18 | .69 |
| I could be smart enough to finish college | .42 | .64 |
| I could make friends at college | .13 | .63 |
| I could get the education I need for my choice of career | .34 | .61 |
| I could do the classwork and homework assignments in college classes | .32 | .59 |
| I could set my own schedule while in college | .22 | .58 |
| I could take care of myself in college | .13 | .57 |
| I could care for my family responsibilities while in college | .23 | .57 |
| I would like being in college | .20 | .57 |
| I could finish college and receive a college degree | .46 | .54 |
| I could get good enough grades to get or keep a scholarship | .50 | .53 |
| I could get a job after I graduate from college | .29 | .50 |
| <i>I can get good grades in my high school science classes</i> | .47 | .47 |

Note. Italicized items were originally predicted to be grouped with other factor.

The exploratory factor analysis revealed that a two-factor solution appeared to be a good fit to explain college-going self-efficacy. The items primarily loaded on the predicted factors. Three items originally identified as persistence items loaded on the attendance factor and one item originally identified as attendance loaded on the

persistence factor. The two new subscales still had evidence of good internal validity ($\alpha = .89$ for factor 1, $\alpha = .90$ for factor two).

Even using a liberal item-to-assignment rule (i.e., .30 or more and .25 or less), however, many of the items did not clearly load on one factor. A correlation matrix was run to determine the relationship between the two factors ($r(1) = .77, p < .01$). This strong correlation suggests that the two scales are highly related to each other. Because of this strong correlation, it appears that while college-going self-efficacy is determined by both attendance and persistence beliefs, a total scale score is most appropriate for use in analysis of differences.

Research Questions

Analysis of data was completed related to each of the research questions and corresponding hypotheses. Both descriptive and inferential statistics were included in each research question. Significance was determined using a .05 alpha level for each test.

Research Question 1

Is there a statistically significant mean difference in the scores for levels of perceived barriers to postsecondary education pursuits for first-generation students as compared to non-first-generation students?

Question 1A: What are the specific types of barriers that first-generation students are more prone to than are their peers?

Hypothesis 1: It was hypothesized that first-generation students will perceive more barriers related to college-going.

For each scale, descriptive statistics were gathered and examined by first-generation status. Descriptive statistics for the PEB-R are reported in Table 18.

Table 18. Means for PEB-R by Gender, Ethnicity, and First-Generation Status.

| | <u>n</u> | Mean | <u>SD</u> |
|----------------------------|----------|-------|-----------|
| First-Generation | | | |
| Males | 52 | 93.79 | 22.81 |
| Caucasian | 8 | 79.88 | 19.58 |
| African American | 11 | 95.36 | 21.60 |
| Hispanic/Latino | 27 | 97.44 | 22.89 |
| Other | 6 | 93.00 | 26.89 |
| Females | 57 | 92.23 | 24.95 |
| Caucasian | 7 | 79.00 | 28.83 |
| African American | 13 | 89.92 | 24.13 |
| Hispanic/Latino | 31 | 98.48 | 24.54 |
| Other | 6 | 80.33 | 17.15 |
| Total First-Generation | 109 | 92.97 | 23.85 |
| Non-First-Generation | | | |
| Males | 65 | 71.39 | 22.36 |
| Caucasian | 31 | 66.61 | 18.34 |
| African American | 25 | 78.96 | 25.33 |
| Hispanic/Latino | 2 | 46.00 | 33.94 |
| Other | 7 | 72.71 | 17.88 |
| Females | 96 | 77.82 | 21.79 |
| Caucasian | 46 | 71.02 | 18.09 |
| African American | 34 | 83.44 | 20.75 |
| Hispanic/Latino | 5 | 86.40 | 21.58 |
| Other | 18 | 80.22 | 27.34 |
| Total Non-First-Generation | 161 | 75.17 | 22.12 |

Note. PEB-R has 45 questions with a score range of 45 – 180. Higher scores indicate more perceived barriers.

The score range suggests that first-generation students perceived more barriers than non-first generation students. There appeared to be variance in the answers selected

by each group of students. None of the groups had a high mean for perceived barriers, suggesting that these participants did not foresee a high number of barriers preventing them from attending and being successful in college. No obvious differences in levels of perceived barriers were apparent between males and females.

Question 1 was tested by computing a Factorial ANOVA. The independent factors included gender, ethnicity (four categories), and first-generation status, and the dependent factor was the mean score on the PEB-R Likelihood Scale. The independent factors were selected to determine if differences in scores were affected by gender or race in combination with or instead of first-generation status. The Factorial ANOVA results are presented in Table 19.

Table 19. Factorial ANOVA Results of PEB-R, Including First-Generation Status, Gender, and Ethnicity.

Dependent Variable: pebLikTot

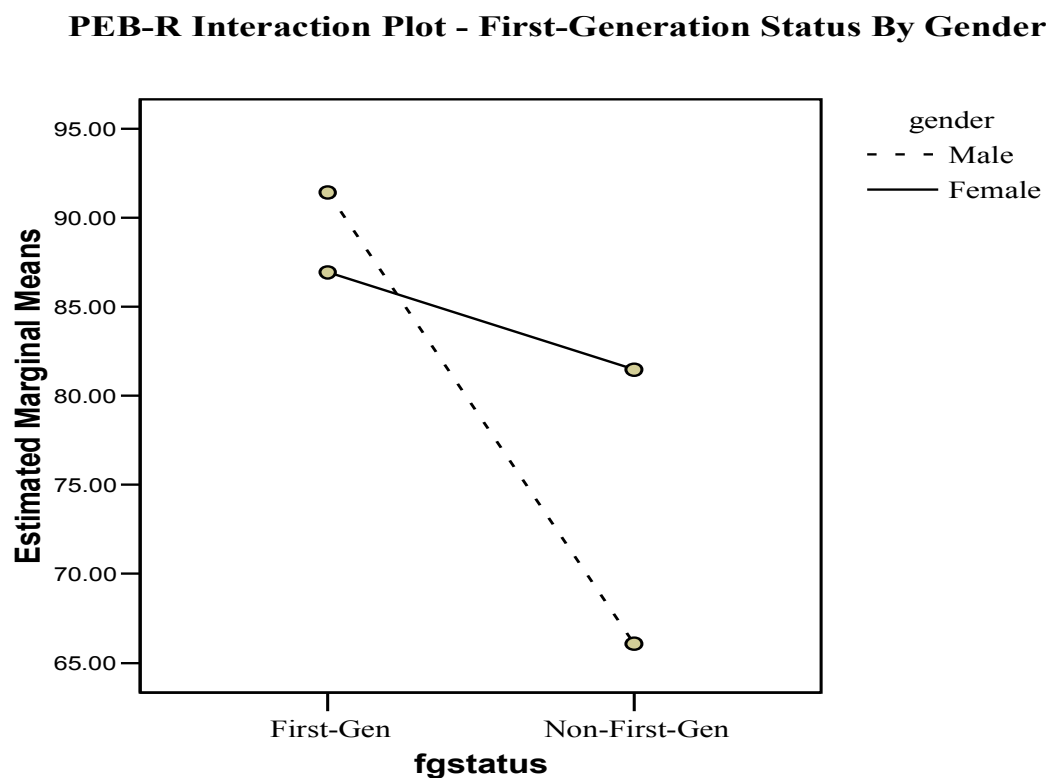
| Source | Type III Sum of Squares | <i>df</i> | Mean Square | <i>F</i> | Sig. | Partial Eta Squared | Observed Power |
|----------------------|-------------------------------|-----------|----------------|--------------|-------------|---------------------------|-------------------|
| Fgstatus (FG) | 8017.07 | 1 | 8017.07 | 16.21 | .000 | .060 | .980 |
| Gender (G) | 1004.400 | 1 | 1004.40 | 2.03 | .155 | .008 | .295 |
| raceby4 (R) | 4723.47 | 3 | 1574.49 | 3.18 | .024 | .036 | .732 |
| FGxG | 3335.91 | 1 | 3335.91 | 6.75 | .010 | .026 | .735 |
| FGxR | 2131.40 | 3 | 710.47 | 1.44 | .233 | .017 | .379 |
| GxR | 1926.99 | 3 | 642.33 | 1.29 | .275 | .015 | .345 |
| FGxGxR | 1347.53 | 3 | 449.18 | .91 | .438 | .011 | .248 |
| Error | 125608.39 | 254 | 494.52 | | | | |
| Total | 160630.17 | 269 | | | | | |

Note. Bolded items were significant at alpha = .05

Based on these results, Hypothesis 1 was supported. The Factorial ANOVA indicated that there was a main effect first-generation status. First-generation students perceived significantly more barriers to college-going than did non-first-generation students. A main effect by race was found as well. A post-hoc comparison of means by racial groups was completed to examine which groups perceived more barriers. Caucasian participants perceived significantly less barriers to college-going than did any other ethnic group ($M = 70.91$, $SD = 19.38$). Caucasian students also made up a large percentage of the non-first-generation participant group. The Hispanic/Latino participants perceived the most barriers to college ($M = 95.51$, $SD = 25.12$). Most of the participants in this ethnic group were first-generation students as well. Interaction effects for first-generation status and race, however, did not achieve significance.

An interaction effect between first-generation status and gender was found as well. Therefore, an examination of the interaction effects of first-generation status and gender was completed. For perceptions of barriers, male students perceived more barriers to college-going than did female participants, regardless of first-generation status. Figure 4 illustrates this difference.

Figure 4. Interaction Plot for PEB-R Between First-Generation Status and Gender.



To address Question 1A, results of the mean scores for the individual barrier items were examined for both first-generation participants and their peers. These items had previously been grouped into 12 barrier categories, with a range of 2 to 6 barrier items per category. No single barrier item had a mean score above 3.0, indicating that no barriers were considered “likely” or “very likely” to occur for the majority of participants. Therefore, items with mean scores above 2.0 (out of 4) were considered to be a barrier for students. The barriers with higher mean scores are listed in Tables 20 and 21.

Table 20. Barriers, by Themed Category, with Means Above 2.0 (out of 4), for First-Generation Students.

| Barrier Theme | Barrier Item | Mean | SD |
|---|---|------|------|
| Financial (3 of 3 items) | Not enough money | 2.35 | .95 |
| | Having to work while going to school | 2.31 | 1.16 |
| | School/program very expensive | 2.52 | 1.07 |
| Family Issues (4 of 5 items) | Being married | 2.17 | 1.09 |
| | Family responsibilities | 2.11 | 1.03 |
| | Pregnancy/having children | 2.30 | 1.25 |
| | Not wanting to move away | 2.24 | 1.11 |
| Being Prepared/ Desire (4 of 5 items) | Takes long time to finish schooling | 2.22 | .99 |
| | Not being interested in classes | 2.13 | .98 |
| | Lack of study skills | 2.04 | 1.03 |
| | School too stressful | 2.20 | 1.04 |
| Not Fitting In (2 of 3 items) | Not fitting in at new school | 2.17 | 1.04 |
| | School I want not available here | 2.21 | 1.10 |
| Uncertainty (1 of 3 items) | Not knowing what kind of school I want | 2.12 | 1.03 |
| Lack of Intelligence (1 of 3 items) | Not being able to get into college I want | 2.45 | 1.13 |
| Lack of Support (1 of 6 items) | Others don't think I can do it | 2.07 | 1.11 |
| Discrimination (4 of 6 items) | *People believing that kids of my ethnicity don't do well in school | 2.09 | 1.06 |
| | Racial/ethnic discrimination | 2.23 | 1.13 |
| | *Not having enough people of my ethnicity at college | 2.05 | 1.02 |
| | *Being treated differently because of my race/ethnicity | 2.19 | 1.14 |
| Lack of Role Model (2 of 4 items) | *No one in my family has gone to college | 2.07 | 1.16 |
| | *Parents don't have knowledge about college | 2.08 | 1.15 |
| Negative Role Model (2 of 2 items) | *Pressure to not pay attention in school | 2.17 | 1.05 |
| | *Pressure to get a job rather than stay in school | 2.07 | 1.04 |
| Lack of Guidance (2 of 2 items) | *No one to help me understand planning for school | 2.16 | 1.10 |
| | *Not taking the right courses in high school | 2.12 | 1.02 |

Note. * = new item added to original PEB for this study.

Note. Twenty-six of 45 items had means above 2.0 for first-generation students.

Table 21. Barriers, by Themed Category, with Means Above 2.0 (out of 4), for Non-First-Generation Students

| Barrier Theme | Barrier Item | Mean | <u>SD</u> |
|--|--------------------------------------|------|-----------|
| Financial (2 of 3 items) | Having to work while going to school | 2.27 | 1.03 |
| | School very expensive | 2.13 | 1.07 |
| Being Prepared/Desire (1 of 5 items) | School too stressful | 2.01 | .99 |

Note. Three of 45 items had means above 2.0 for non-first-generation students.

First-generation participants perceived many more barriers above the 2.0 mark to furthering their education than did non-first-generation students. Finances, ethnic discrimination, family issues, being prepared, and lack of role models for college planning and attendance were particularly strong perceived barriers for this group of students. For non-first-generation students, only finances and school stress appeared to be somewhat significant barriers.

Research Question 2

Is there a statistically significant mean difference in scores for levels of perceived family and school supports to postsecondary education pursuits reported by first-generation students as compared to non-first-generation students?

Hypothesis 2: It was hypothesized that first-generation students would perceive less family and school support for college-going.

Descriptive statistics were computed for both the perceived family support and school personnel support scales. These statistics were broken down by first-generation status, gender, and ethnicity. The results are detailed in Tables 22 and 23.

Table 22. Means for CASSS-Parent Scale by Gender, Ethnicity, and First-Generation Status

| | <u>N</u> | Mean | <u>SD</u> |
|----------------------------|----------|-------|-----------|
| First-Generation | | | |
| Males | 51 | 52.88 | 14.86 |
| Caucasian | 8 | 45.13 | 20.28 |
| African American | 11 | 53.27 | 14.76 |
| Hispanic/Latino | 26 | 54.58 | 13.67 |
| Other | 6 | 55.17 | 11.97 |
| Females | 57 | 55.91 | 13.94 |
| Caucasian | 7 | 55.86 | 11.96 |
| African American | 13 | 53.23 | 14.41 |
| Hispanic/Latino | 31 | 56.07 | 15.42 |
| Other | 6 | 61.00 | 5.40 |
| Total First-Generation | 108 | 54.48 | 14.39 |
| Non-First-Generation | | | |
| Males | 64 | 58.33 | 14.12 |
| Caucasian | 31 | 60.42 | 13.47 |
| African American | 24 | 58.58 | 11.85 |
| Hispanic/Latino | 2 | 57.00 | 2.83 |
| Other | 7 | 48.57 | 22.66 |
| Females | 97 | 58.33 | 14.12 |
| Caucasian | 47 | 60.79 | 10.23 |
| African American | 34 | 60.94 | 10.71 |
| Hispanic/Latino | 5 | 62.40 | 7.44 |
| Other | 11 | 51.18 | 11.21 |
| Total Non-First-Generation | 161 | 59.24 | 12.16 |

Note. The CASSS-Parent Scale has 12 questions with a possible score range of 12 – 72. Higher scores indicate more perceived parent support.

Overall, participants indicated that they perceived a moderate to high level of educational support from their parents. A moderate range of variance existed within each group of students. This was true for both first-generation students and their peers.

Within parent education groups, no differences were apparent between males and females on perceived parent support.

Table 23. Means for CASSS-School Personnel Scale by Gender, Ethnicity, and First-Generation Status

| | <u>N</u> | Mean | <u>SD</u> |
|----------------------------|----------|-------|-----------|
| First-Generation | | | |
| Males | 51 | 54.43 | 14.17 |
| Caucasian | 8 | 49.75 | 20.84 |
| African American | 11 | 57.27 | 11.71 |
| Hispanic/Latino | 26 | 53.38 | 13.69 |
| Other | 6 | 60.00 | 9.53 |
| Females | 57 | 56.70 | 13.94 |
| Caucasian | 7 | 60.29 | 12.39 |
| African American | 13 | 54.92 | 11.97 |
| Hispanic/Latino | 31 | 57.19 | 15.93 |
| Other | 6 | 53.83 | 9.49 |
| Total First-Generation | 108 | 55.63 | 14.03 |
| Non-First-Generation | | | |
| Males | 64 | 54.30 | 14.74 |
| Caucasian | 31 | 57.94 | 12.29 |
| African American | 24 | 52.00 | 14.91 |
| Hispanic/Latino | 2 | 63.50 | 12.02 |
| Other | 7 | 43.43 | 19.83 |
| Females | 97 | 55.65 | 12.02 |
| Caucasian | 47 | 57.64 | 9.45 |
| African American | 34 | 54.50 | 13.62 |
| Hispanic/Latino | 5 | 65.00 | 6.40 |
| Other | 11 | 46.45 | 13.74 |
| Total Non-First-Generation | 161 | 55.11 | 13.14 |

Note. The CASSS-School Personnel Scale has 12 questions with a possible score range of 12 – 72. Higher scores indicate more perceived school personnel support.

Both first-generation participants and their peers appeared to perceive a moderate to high amount of educational-related support from the adults in their school. The range of variance in the responses suggests that students had individual differences in their perceptions about this support group. Females tended to have slightly higher perceptions of school personnel support than did male participants.

Question 2 was tested by computing a Factorial ANOVA. The independent factors included gender, ethnicity, and first-generation status, and the dependent factors were the mean scores on the CASSS Parent and School Personnel Scales. The independent factors were selected to determine if differences in scores were affected by gender or race in addition to first-generation status. The results of the Factorial ANOVAs for each scale are presented in Tables 24 and 25.

Table 24. Factorial ANOVA for Perceived Parent Support, Including First-Generation Status, Gender, and Ethnicity

Dependent Variable: cassParTot

| Source | Type III Sum of Squares | <i>df</i> | Mean Square | <i>F</i> | Sig. | Partial Eta Squared | Observed Power |
|---------------|-------------------------------|-----------|----------------|-------------|-------------|---------------------------|-------------------|
| Fgstatus (FG) | 345.01 | 1 | 345.01 | 2.03 | .155 | .008 | .29 |
| Gender (G) | 435.38 | 1 | 435.37 | 2.57 | .110 | .010 | .36 |
| raceby4 (R) | 188.68 | 3 | 62.89 | .37 | .774 | .004 | .12 |
| FGxG | 27.88 | 1 | 27.88 | .16 | .685 | .001 | .07 |
| FGxR | 1594.37 | 3 | 531.46 | 3.13 | .026 | .036 | .73 |
| GxR | 145.92 | 3 | 48.64 | .29 | .835 | .003 | .11 |
| FGxGxR | 346.28 | 3 | 115.43 | .68 | .565 | .008 | .19 |
| Error | 42910.96 | 253 | 169.61 | | | | |
| Total | 47293.21 | 268 | | | | | |

Note. Bolded items were significant at $\alpha = .05$

Hypothesis 2 was not supported for parent support. No significant differences by first-generation status (main effect) were detected. A significant interaction effect between first-generation status and ethnicity was found. An examination of this interaction revealed that, for the “Other Ethnicity” group ($n = 30$), first-generation students reported higher perceived parent support than did the non-first-generation students in this group. For all other ethnic groups, first-generation students reported lower perceived parent support than did their non-first-generation peers.

Based on these results, a second Factorial ANOVA ($n = 239$) was then completed without the “Other Ethnicity” group included. Results showed a significant main effect by first-generation status ($F = 7.78, df = 1, p < .01, \eta^2 = .03$). No significant interaction effects were found in the second analysis. In this analysis, all other first-generation students perceived less parental support for college-going than did their peers, regardless of their ethnicity.

Table 25. Factorial ANOVA for Perceived School Personnel Support, Including First-Generation Status, Gender, and Ethnicity

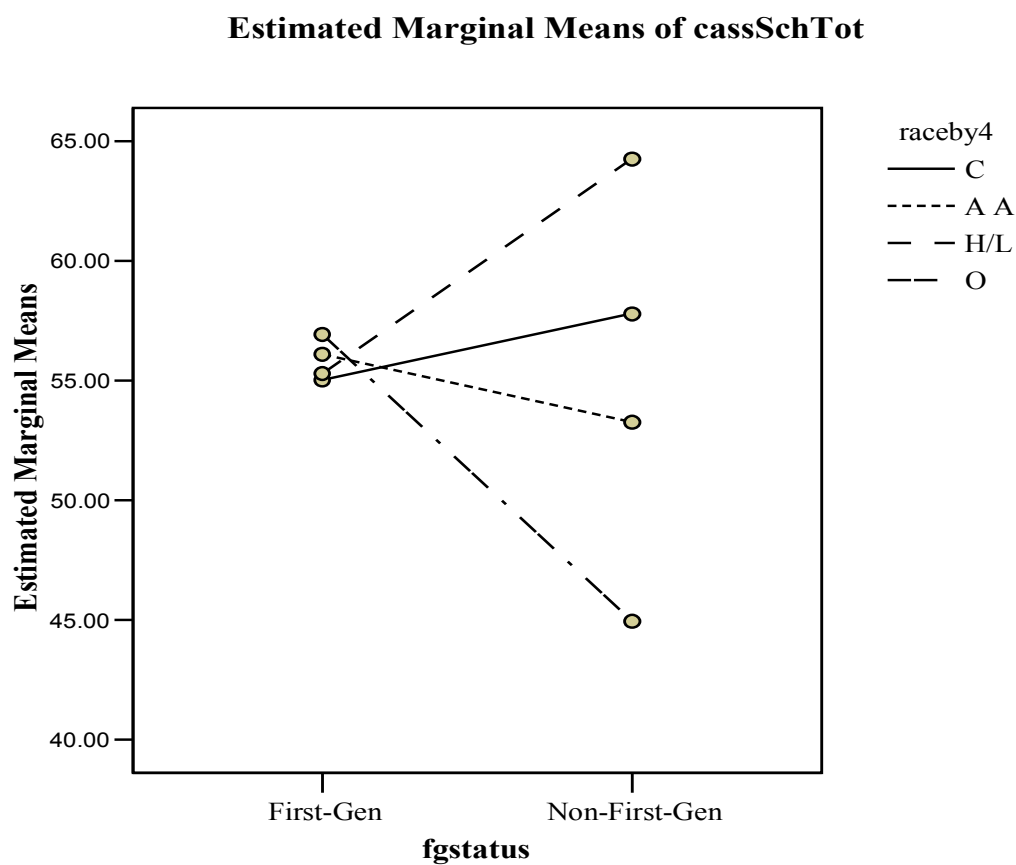
Dependent Variable: cassSchTot

| Source | Type III Sum of Squares | <i>df</i> | Mean Square | <i>F</i> | Sig. | Partial Eta Squared | Observed Power |
|---------------|-------------------------------|-----------|----------------|--------------|-------------|---------------------------|-------------------|
| Fgstatus (FG) | 20.161 | 1 | 20.161 | .114 | .736 | .000 | .063 |
| Gender (G) | 83.072 | 1 | 83.072 | .470 | .493 | .002 | .105 |
| raceby4 (R) | 1038.610 | 3 | 346.203 | 1.960 | .120 | .023 | .502 |
| FGxG | .427 | 1 | .427 | .002 | .961 | .000 | .050 |
| FGxR | 1596.235 | 3 | 532.078 | 3.012 | .031 | .034 | .706 |
| GxR | 269.692 | 3 | 89.897 | .509 | .676 | .006 | .153 |
| FGxGxR | 619.505 | 3 | 206.502 | 1.169 | .322 | .014 | .313 |
| Error | 44686.023 | 253 | 176.625 | | | | |
| Total | 48710.506 | 268 | | | | | |

Note. Bolded items were significant at $\alpha = .05$

Hypothesis 2 was not supported for school personnel support. No significant differences by first-generation status were found. An interaction effect between first-generation status and race was detected. Results of this interaction are illustrated in Figure 5.

Figure 5. Interaction Effects Between First-Generation Status and Ethnicity on Perceived School Personnel Support



Note. raceby4: C = Caucasian, A A = African American, H/L = Hispanic/Latino, O = Other

Based on this interaction effect, it appears that the first-generation participants all had extremely similar mean scores on perceived school personnel support, regardless of ethnicity. For non-first-generation students, however, there was wide variability of perceived school personnel support based on ethnicity. Non-first-generation Caucasian students had slightly higher ratings of school personnel support than did their African American and Other Ethnicity peers and Hispanic/Latino non-first-generation students had much higher ratings than did all their peers. For the African American and Other participants, however, perceived school support was lower for the non-first-generation students.

Research Question 3

Is there a statistically significant mean difference in scores of college-going self-efficacy reported by first-generation students as compared to non-first-generation students?

Hypotheses 3: It was hypothesized that first-generation students would have lower college-going self-efficacy.

Descriptive statistics were identified for participants who completed the self-efficacy survey. Results are detailed in Table 26.

Table 26. Means for CGSES – Total Scale by Gender, Ethnicity, and First-Generation Status

| | <u>N</u> | Mean | <u>SD</u> |
|----------------------------|----------|--------|-----------|
| First-Generation | | | |
| Males | 51 | 88.35 | 14.85 |
| Caucasian | 8 | 89.25 | 19.33 |
| African American | 11 | 82.00 | 16.70 |
| Hispanic/Latino | 26 | 89.85 | 13.83 |
| Other | 6 | 92.33 | 6.80 |
| Females | 57 | 92.16 | 13.08 |
| Caucasian | 7 | 92.14 | 17.33 |
| African American | 13 | 98.62 | 11.72 |
| Hispanic/Latino | 31 | 88.48 | 12.33 |
| Other | 6 | 97.17 | 9.52 |
| Total First-Generation | 108 | 90.36 | 14.00 |
| Non-First-Generation | | | |
| Males | 65 | 99.12 | 13.59 |
| Caucasian | 31 | 99.32 | 13.39 |
| African American | 25 | 98.00 | 14.96 |
| Hispanic/Latino | 2 | 105.00 | 12.73 |
| Other | 7 | 100.57 | 11.50 |
| Females | 97 | 99.24 | 14.03 |
| Caucasian | 47 | 101.96 | 13.24 |
| African American | 34 | 99.91 | 9.15 |
| Hispanic/Latino | 5 | 91.60 | 20.45 |
| Other | 11 | 89.00 | 21.44 |
| Total Non-First-Generation | 162 | 99.19 | 13.81 |

Note. The CGSES has 30 questions with a possible score range from 30 – 120. Higher scores indicate higher college-going self-efficacy.

Both first-generation students and their peers had moderate to high levels of college-going self-efficacy. First-generation participants appeared to have slightly lower college-going self-efficacy beliefs as compared to non-first-generation students. No differences were apparent by gender for college-going self-efficacy.

Question 3 was tested by computing a Factorial ANOVA. The independent factors included gender, ethnicity, and first-generation status, and the dependent factor were the mean scores on the CGSES – Total Scale. The independent factors were selected to determine if differences in scores were affected by gender or race in addition to first-generation status. The results are found in Table 27.

Table 27. Factorial ANOVA for CGSES – Total Scale, by First-Generation Status, Gender, and Ethnicity

Dependent Variable: cgsesTotal

| Source | Type III Sum of Squares | <i>df</i> | Mean Square | <i>F</i> | Sig. | Partial Eta Squared | Observed Power |
|----------------------|-------------------------------|-----------|----------------|-------------|-------------|---------------------------|-------------------|
| Fgstatus (FG) | 1625.68 | 1 | 1625.68 | 8.66 | .004 | .033 | .834 |
| Gender (G) | 3.44 | 1 | 3.44 | .018 | .892 | .000 | .052 |
| raceby4 (R) | 62.65 | 3 | 20.88 | .111 | .953 | .001 | .070 |
| FGxG | 993.39 | 1 | 993.39 | 5.29 | .022 | .020 | .630 |
| FGxR | 502.65 | 3 | 167.55 | .893 | .446 | .010 | .244 |
| GxR | 1507.24 | 3 | 502.41 | 2.68 | .048 | .031 | .648 |
| FGxGxR | 465.13 | 3 | 155.04 | .826 | .481 | .010 | .228 |
| Error | 47681.07 | 254 | 187.72 | | | | |
| Total | 56762.65 | 269 | | | | | |

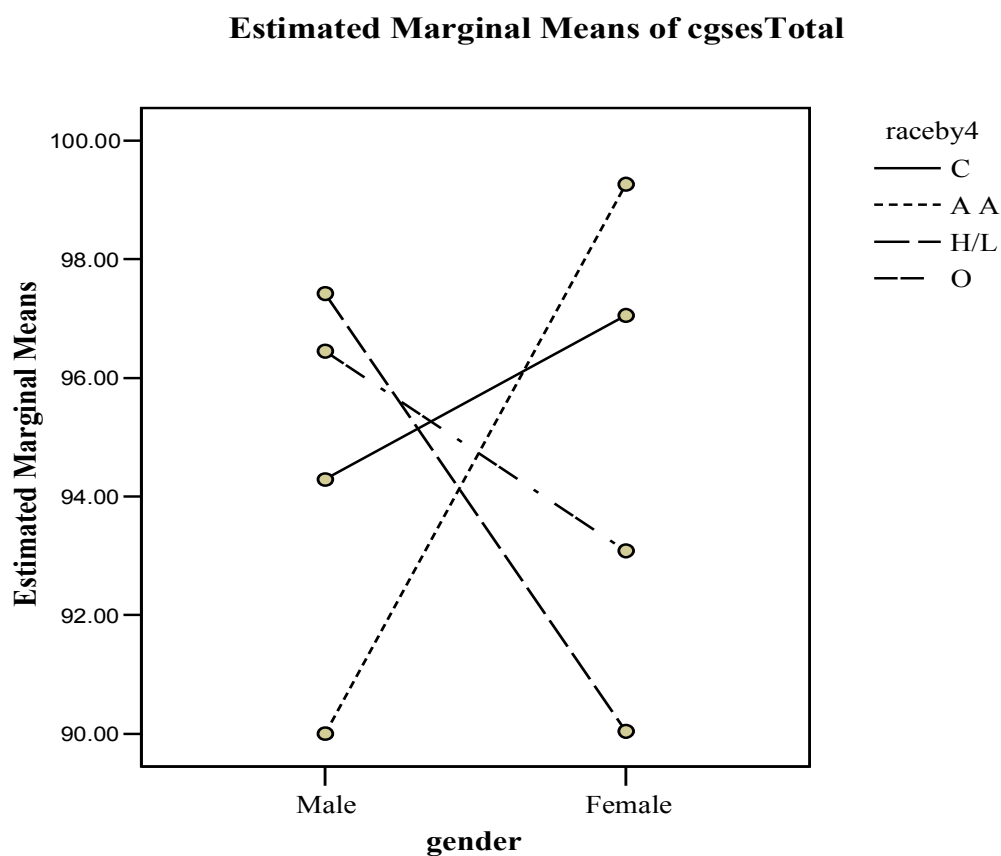
Note. Bolded items were significant at alpha = .05

Hypothesis 3 was supported. The Factorial ANOVA indicated a significant main effect by first-generation status. First-generation participants had significantly lower college-going self-efficacy scores as compared to their non-first-generation peers. Two interaction effects were found as well. An analysis of the interaction effect between gender and first-generation status revealed significant differences between the mean scores for males by first-generation status on self-efficacy beliefs ($F = 17.37$, $df = 1$, $p < .001$, $\eta^2 = .13$). Male first-generation students had significantly lower means than did

female first-generation students and male non-first-generation students. No differences were found for females by first-generation status.

A graphic depiction of the interaction effect between gender and ethnicity is shown in Figure 6.

Figure 6. Interaction Effects Between Gender and Ethnicity on CGSES-Total Scale



Note. Raceby4 = C = Caucasian, A A = African American, H/L = Hispanic/Latino, O = Other

No obvious pattern existed for this interaction. For Caucasian students, males reported a slightly higher mean score on self-efficacy than did their female peers. For African American students, a wide discrepancy existed between genders, with females indicating much higher self-efficacy belief than males. Hispanic/Latino students displayed the opposite effect, with female students having much lower college-going self-efficacy than males. Finally, females in the Other group appeared to have slightly higher self-efficacy scores than males.

Research Question 4

Is there a statistically significant mean difference in the scores of college-going outcome expectations reported by first-generation students as compared to non-first-generation students?

Hypothesis 4: It was hypothesized that first-generation students would have lower college-going outcome expectations.

Table 28 details the descriptive statistics for the positive outcome expectations scale. Both first-generation and non-first-generation participants had fairly high levels of perceived positive outcome beliefs related to college-going. The non-first-generation students had slightly higher mean scores than their first-generation peers. No apparent differences existed by gender, with the exception of the smaller amount of variance in the answers from the non-first-generation females.

Table 28. Means for CGOES – Positive Scale by Gender, Ethnicity, and First-Generation Status

| | <u>N</u> | Mean | <u>SD</u> |
|----------------------------|----------|-------|-----------|
| First-Generation | | | |
| Males | 49 | 46.57 | 6.72 |
| Caucasian | 6 | 48.17 | 8.70 |
| African American | 11 | 44.73 | 5.83 |
| Hispanic/Latino | 27 | 46.81 | 7.13 |
| Other | 5 | 47.40 | 4.16 |
| Females | 56 | 47.96 | 6.25 |
| Caucasian | 7 | 50.29 | 5.65 |
| African American | 13 | 49.23 | 5.40 |
| Hispanic/Latino | 31 | 46.74 | 6.69 |
| Other | 5 | 49.00 | 6.20 |
| Total First-Generation | 105 | 47.31 | 6.48 |
| Non-First-Generation | | | |
| Males | 62 | 50.61 | 7.55 |
| Caucasian | 30 | 51.80 | 6.82 |
| African American | 24 | 48.75 | 8.97 |
| Hispanic/Latino | 2 | 53.00 | 4.24 |
| Other | 6 | 51.33 | 4.76 |
| Females | 88 | 50.83 | 5.46 |
| Caucasian | 45 | 51.38 | 6.24 |
| African American | 30 | 50.17 | 4.53 |
| Hispanic/Latino | 5 | 51.60 | 4.98 |
| Other | 8 | 49.75 | 4.59 |
| Total Non-First-Generation | 150 | 50.74 | 6.38 |

Note. The CGOES-P has 15 items with a possible score range of 15 – 60. Higher scores indicate higher positive college-going outcome beliefs.

Table 29 includes the descriptive statistics for the negative outcome scores.

Overall scores indicate a low to moderate level of perceived negative outcome beliefs

related to college-going. First-generation students were more likely to indicate a higher

number of negative beliefs than were their peers. The higher standard deviations suggest a wide amount of variance among participants for this construct. All groups indicated some level of negative outcome expectations, regardless of the strength in their positive outcome beliefs.

Table 29. Means for CGOES – Negative Scale by Gender, Ethnicity, and First-Generation Status

| | <u>N</u> | Mean | <u>SD</u> |
|----------------------------|----------|-------|-----------|
| First-Generation | | | |
| Males | 49 | 28.61 | 8.25 |
| Caucasian | 6 | 27.00 | 10.84 |
| African American | 11 | 30.27 | 9.29 |
| Hispanic/Latino | 27 | 28.37 | 7.92 |
| Other | 5 | 28.20 | 5.81 |
| Females | 56 | 25.95 | 9.19 |
| Caucasian | 7 | 23.00 | 8.70 |
| African American | 13 | 22.62 | 9.12 |
| Hispanic/Latino | 31 | 27.09 | 8.78 |
| Other | 5 | 31.60 | 10.92 |
| Total First-Generation | 105 | 27.19 | 8.83 |
| Non-First-Generation | | | |
| Males | 62 | 23.16 | 8.36 |
| Caucasian | 30 | 20.67 | 6.42 |
| African American | 24 | 23.71 | 8.08 |
| Hispanic/Latino | 2 | 32.00 | 15.56 |
| Other | 6 | 30.50 | 11.36 |
| Females | 88 | 23.39 | 7.49 |
| Caucasian | 45 | 21.22 | 6.18 |
| African American | 30 | 25.00 | 8.75 |
| Hispanic/Latino | 5 | 30.40 | 5.68 |
| Other | 8 | 25.13 | 6.56 |
| Total Non-First-Generation | 150 | 23.29 | 7.84 |

Note. The CGOES-N has 13 items with a possible score range of 13 – 52. Higher scores indicate higher negative outcome beliefs related to college-going.

A comparison of means for positive and negative beliefs through a correlation matrix was completed to determine if the two scales were polar opposites or related yet independent from each other ($r(1) = -.218, p < .01$). Although this correlation is significant, it is not strong enough to indicate that positive and negative outcome expectations can be considered the reverse of each other. Mean scores by first-generation status, gender, and ethnicity indicate that the scales were measuring two distinct types of outcomes. Negative outcomes were not directly opposite of positive ones; in fact most participants indicated some negative beliefs regardless of the strength of their positive outcome expectations. In particular, the Hispanic/Latino participants indicated a moderate level of negative outcome beliefs even though they had moderate to high positive outcome beliefs as well. For these participants, it appears that while some relationship exists between positive and negative outcome beliefs, the two are not necessarily opposites but rather two distinct belief systems.

Question 4 was tested by computing a Factorial ANOVA. The independent factors included gender, ethnicity, and first-generation status, and the dependent factors were the mean scores on the CGOES-Positive and CGOES-Negative. The independent factors were selected to determine if differences in scores were affected by gender, race, and/or first-generation status. Details of this analysis are found in Table 30 (positive scale) and Table 31 (negative scale).

Table 30. Factorial ANOVA for CGOES-Positive Scale, by First-Generation Status, Gender, and Ethnicity

Dependent Variable: cgoesPosTot

| Source | Type III Sum of Squares | <i>df</i> | Mean Square | <i>F</i> | Sig. | Partial Eta Squared | Observed Power |
|----------------------|-------------------------------|-----------|----------------|-------------|-------------|---------------------------|-------------------|
| Fgstatus (FG) | 312.10 | 1 | 312.10 | 7.42 | .007 | .030 | .775 |
| Gender (G) | 18.35 | 1 | 18.34 | .44 | .509 | .002 | .101 |
| raceby4 (R) | 130.42 | 3 | 43.47 | 1.04 | .378 | .013 | .279 |
| FGxG | 49.68 | 1 | 49.68 | 1.18 | .278 | .005 | .191 |
| FGxR | 43.47 | 3 | 14.49 | .35 | .793 | .004 | .117 |
| GxR | 78.35 | 3 | 26.12 | .62 | .602 | .008 | .179 |
| FGxGxR | 3.47 | 3 | 1.16 | .03 | .994 | .000 | .055 |
| Error | 10042.04 | 239 | 42.02 | | | | |
| Total | 11166.33 | 254 | | | | | |

Note. Bolded items were significant at alpha = .05

Hypothesis 4 was supported for the positive outcome expectations scale. First-generation students had significantly lower positive outcome beliefs than did non-first-generation participants. No interaction effects were evident for this scale.

Table 31. Factorial ANOVA for CGOES-Negative Scale, by First-Generation Status, Gender, and Ethnicity

Dependent Variable: cgoesNegTot

| Source | Type III Sum of Squares | <i>df</i> | Mean Square | <i>F</i> | Sig. | Partial Eta Squared | Observed Power |
|--------------------|-------------------------------|-----------|----------------|-------------|-------------|---------------------------|-------------------|
| Fgstatus (FG) | 43.93 | 1 | 43.93 | .68 | .410 | .003 | .130 |
| Gender (G) | 103.86 | 1 | 103.86 | 1.61 | .205 | .007 | .244 |
| Raceby4 (R) | 856.68 | 3 | 285.56 | 4.44 | .005 | .053 | .873 |
| FGxG | 9.37 | 1 | 9.37 | .15 | .703 | .001 | .067 |
| FGxR | 201.45 | 3 | 67.15 | 1.04 | .374 | .013 | .281 |
| GxR | 29.94 | 3 | 9.98 | .15 | .926 | .002 | .078 |
| FGxGxR | 361.49 | 3 | 120.49 | 1.87 | .135 | .023 | .482 |
| Error | 15379.24 | 239 | 64.35 | | | | |
| Total | 18191.35 | 254 | | | | | |

Note. Bolded items were significant at alpha = .0

Hypothesis 4 was not supported for the negative outcomes scale. No significant differences existed in mean scores by first-generation status for this scale. A main effect was found for ethnicity. An examination of the mean scores by ethnicity revealed that the Hispanic/Latino ($M = 28.03$, $SD = 8.65$) and Other Ethnicity ($M = 28.46$, $SD = 8.65$) participants perceived more negative outcomes related to college-going than did Caucasian ($M = 21.57$, $SD = 6.89$) or African American ($M = 24.95$, $SD = 8.83$) participants, regardless of first-generation status. A Bonferonni post-hoc analysis was conducted to determine if the mean differences were significant. In all comparisons, there was a significant mean difference between the Caucasian participants and the other three ethnic groups, with Caucasian students reported significantly lower perceived negative beliefs. No significant differences were found between the other ethnic groups.

Research Question 5

Does the SCCT model provide a good fit for both first-generation and non-first-generation students?

Hypothesis 5: It was hypothesized that the SCCT model would be a good fit for both groups of students, but the strength of the correlations between variables will differ.

For first-generation students, perceived barriers will be a stronger influence on self-efficacy beliefs and parental support will be a weaker influence on self-efficacy beliefs.

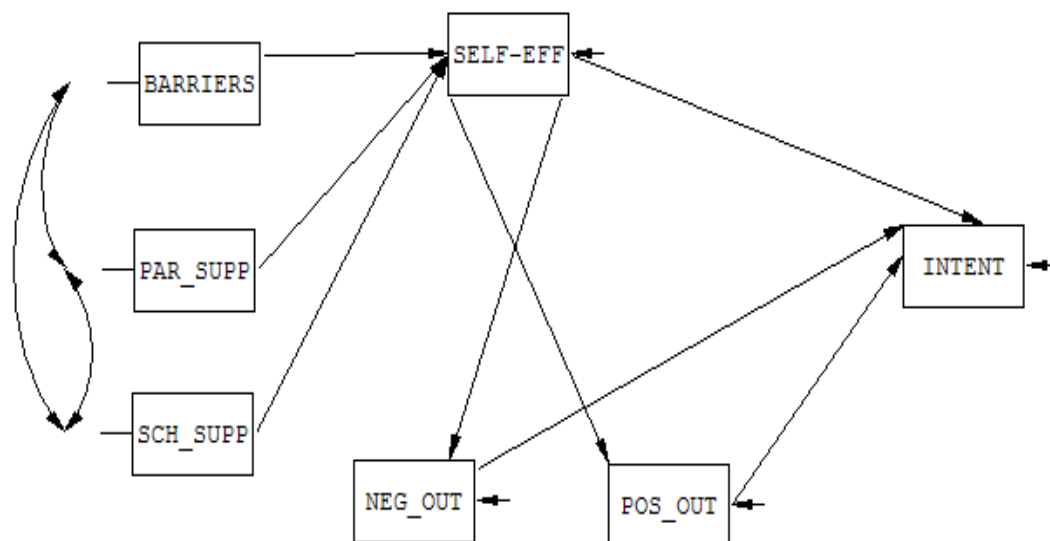
Coping efficacy for first-generation students will be more weakly influenced by self-efficacy beliefs.

The creators of SCCT proposed a path model to explain academic and career development. In this study, the model was tested to determine its fit in explaining the

college-going intentions of 7th grade students. In the newest versions of the model, coping efficacy is included as having a direct effect on self-efficacy beliefs and acting as a buffer against the effects of perceived barriers. For this study, coping efficacy was measured by the PEB-R-Difficulty-to-Overcome (PEB-R-DO) scale. Student responses to this survey, however, led to it being dropped from the study. Over 50% of the participants required individual assistance during the administration process to help understand what the scale meant. This need for individual help occurred after a detailed explanation of the scale had been given to the larger group. Of the total sample, 42 participants (15.44%) answered identically for both the PEB-R-Likelihood Scale and the PEB-R-DO scale, suggesting that they either failed to understand the differences in the two scales or chose not to read each scale separately. In addition, 10 (9.52%) of the first-generation students failed to answer the PEB-R-DO scale at all, indicating that they did not understand how to answer the items. Therefore, the results for this scale were considered invalid and not included in the SEM path analysis.

Thus, the SCCT model being tested is detailed in Figure 7.

Figure 7. Depiction of SCCT Model Being Tested



Note. Barriers = Perceived Barriers; Par_Supp = Perceived Parent Support; Sch_Supp = Perceived School Support; Self-Eff = College-Going Self-Efficacy; Neg_Out = Negative College-Going Outcome Expectations; Pos_Out = Positive College-Going Outcome Expectations; Intent = Strength of Intentions to Go To and Complete College.

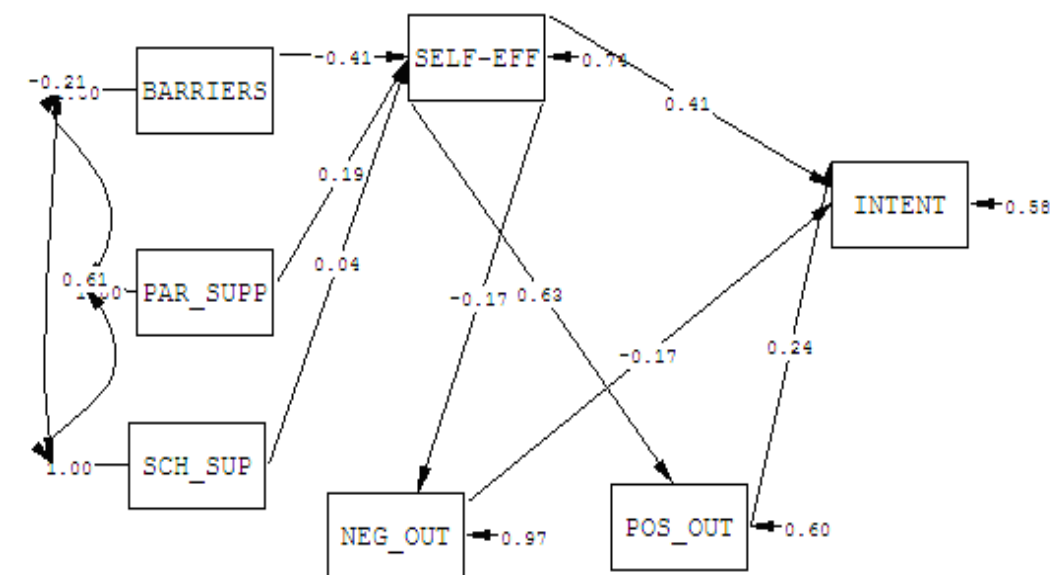
The SCCT model predicts that perceived barriers and supports directly affect self-efficacy beliefs. Self-efficacy directly affects outcome expectation beliefs, and both self-efficacy and outcome beliefs directly affect academic intentions. Parts of the SCCT model not being examined include background characteristics (e.g., gender, ethnicity), coping efficacy, and goals. Goals were not included because middle school students, both in this study and in others, almost unanimously indicate that they plan to attend college and obtain a career that requires a college degree. Thus, no variance in answers is really available for this construct.

To address this research question, a SEM path analysis was conducted with the goal of determining if the SCCT model effectively explained strength of college-going

intentions for the full sample, for first-generation participants only, and for non-first-generation students only. Three path analyses were conducted, one for each group, to determine goodness-of-fit. Because some of the participants failed to complete all of the assessments, those students were dropped for this part of the analysis. This left a total of 249 participants, with 103 first-generation students and 146 non-first-generation students.

The results of the path analysis for the full sample is depicted in Figure 8. Table 32 includes the fit statistics for the full participant group, first-generation group, and non-first-generation group.

Figure 8. SEM Path Analysis for All Participants, Original Model



Chi-Square=64.04, df=10, P-value=0.00000, RMSEA=0.149

Note. All paths, except CASS_SC to CGSES, significant at $\alpha = .05$

Note. Barriers = Perceived Barriers; Par_Supp = Perceived Parental Support; Sch_Sup = Perceived School Support; Self-Eff = College-Going Self-Efficacy; Neg_Out = Negative College-Going Outcome Expectations; Pos_Out = Positive College-Going Outcome Expectations; Intent = Strength of College-Going Intention

Table 32. Results of SEM Path Analysis, All Participants, First-Generation Participants, and Non-First-Generation Participants

| Model | <i>n</i> | χ^2 | <i>df</i> | <i>p</i> | AGFI | RMSEA |
|----------------------|----------|----------|-----------|----------|------|-------|
| Full Sample | 249 | 64.04 | 10 | .00 | .81 | .15 |
| First-Generation | 103 | 33.47 | 10 | .00 | .76 | .15 |
| Non-First-Generation | 149 | 35.75 | 10 | .00 | .82 | .14 |

Note. AGFI = Adjusted goodness-of-fit index; RMSEA = Root Mean Square Error of Approximation.

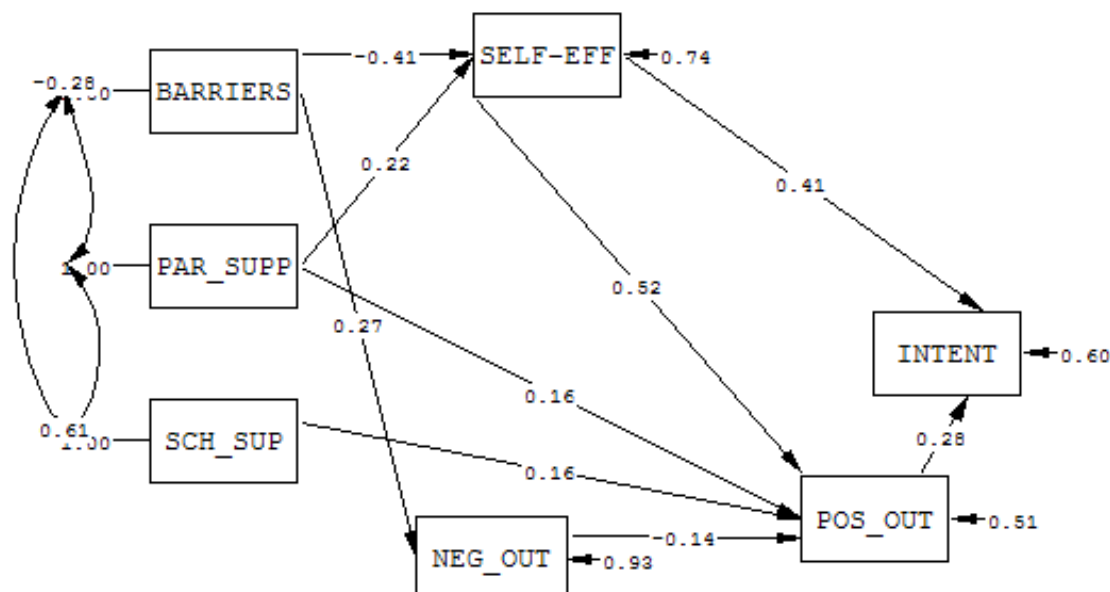
With sample sizes of 249, 103, and 149, one can expect a statistically significant chi-square and should not use this result as an indicator of goodness-of-fit. Therefore, the AGFI and RMSEA statistics were utilized. The AGFI index should be between zero and one, with values above .90 considered good. The RMSEA index also indicates values between zero and one, with values below .10 considered acceptable and values below .05 considered very good in terms of fit. Based on these indices the SCCT model is not a good fit to explain the relationship between these variables and the strength of college-going intentions for 7th grade students for either the full sample or the split samples. Therefore, Hypothesis 5 was not fully supported.

In order to determine the best fit for each group of participants, modifications were made to the original model. All variables were included in these analyses. New paths were drawn from the contextual influences (barriers and supports) to determine what, if any, effects they had on the other variables in the SCCT model. In addition, no research could be found that examined the relationship between negative and positive outcome beliefs separately, so the effects of each of these variables on the other constructs in the model were examined as well.

A clear rationale existed for each new path. The newest research on the relationships of contextual influences (i.e., barriers and supports) to the other SCCT variables has suggested that their effects are fully mediated through self-efficacy (e.g., Lent et al., 2000). However, researchers have not always agreed on this mediation effect and no research could be found that examined the direct relationship between contextual influences and outcome beliefs, so these were explored in this study. In addition, since the concept of separating negative and positive outcome beliefs was not found in the literature, it was necessary to explore the relationship of each of these variables to the other SCCT constructs separately as well as together. Finally, it was predicted that first-generation students might differ in the relationships between variables, so separate path analyses were conducted for this group versus their peers.

The path models for each group are depicted in Figures 9, 10, and 11. Goodness-of-fit statistics for each model are detailed in Table 33.

Figure 9. New Path Diagram for All Participants, All Paths Significant at .05



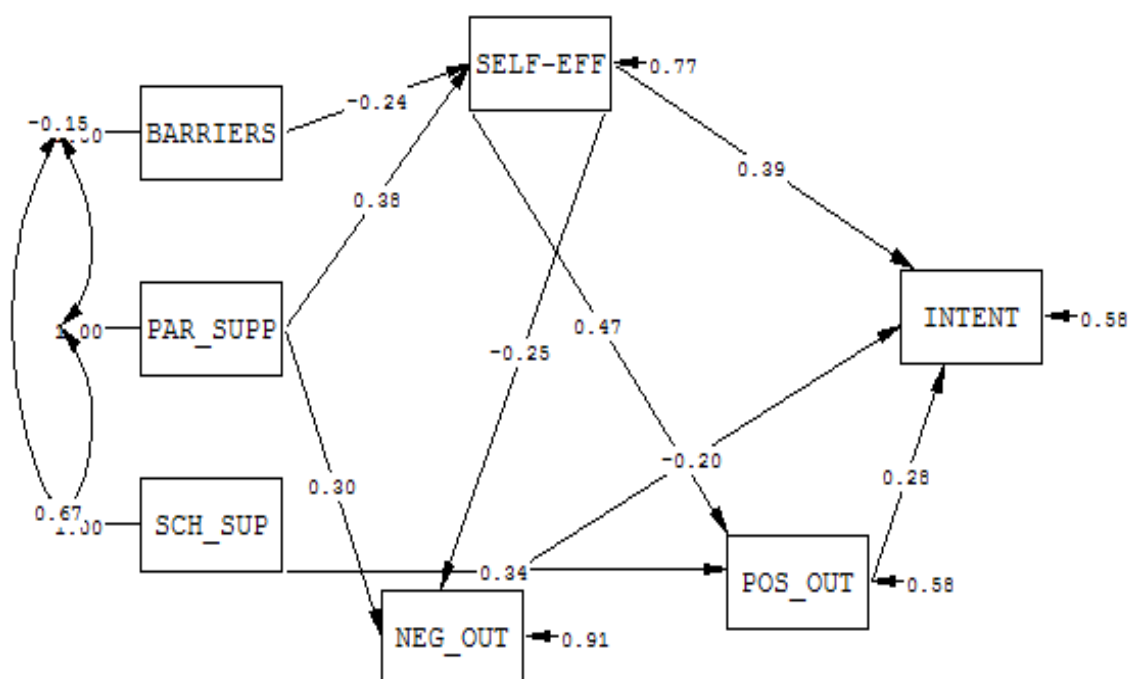
Note. Barriers = Perceived Barriers; Par_Supp = Perceived Parental Support; Sch_Sup = Perceived School Support; Self-Eff = College-Going Self-Efficacy; Neg_Out = Negative College-Going Outcome Expectations; Pos_Out = Positive College-Going Outcome Expectations; Intent = Strength of College-Going Intentions

The path diagrams that emerged indicated that first-generation students differed from non-first-generation participants in what affected the strength of their intentions to go to and graduate from college. Therefore, the path diagrams for the full group and each of the subgroups differed from each other. Nevertheless, some of the significant paths remained the same for each model. In all three cases, perceived barriers (PEB) directly effected college-going self-efficacy beliefs (CGSES), which then directly affected strength of college-going intentions (GO_GRAD). In addition, in all three cases, self-efficacy beliefs directly effected positive outcome beliefs (CGOES_P), which also

directly effected strength of college-going intentions. Each of these paths is predicted by the SCCT model, indicating partial support for this theory.

In addition to the similarities between the models described above, several differences between models existed as well. For the full participant model, perceived barriers (PEB) directly affected negative outcome expectations (CGOES_N) as well as self-efficacy beliefs (CGSES). In addition, perceived parent support (CASS_P) directly affected both self-efficacy beliefs and positive outcome beliefs (CGOES_P). Perceived school personnel support (CASS_SC) directly affected positive outcome beliefs. Finally, in this model, negative outcome beliefs directly affected positive outcome beliefs only and were not directly affected by self-efficacy beliefs.

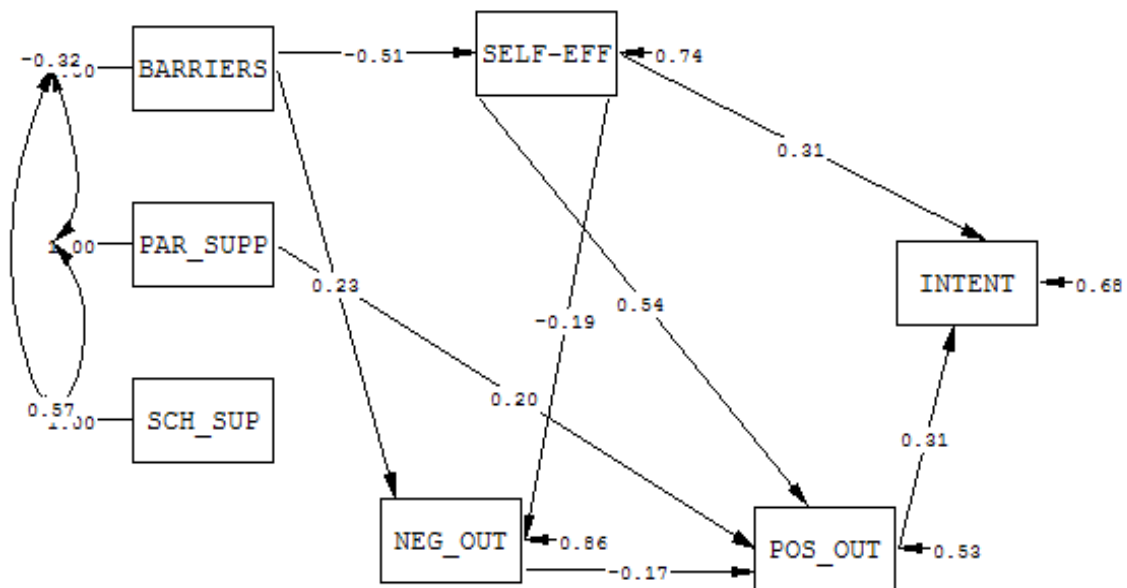
Figure 10. New Path Diagram for First-Generation Participants, All Paths Significant at .05



Note. Barriers = Perceived Barriers; Par_Supp = Perceived Parental Support; Sch_Sup = Perceived School Support; Self-Eff = College-Going Self-Efficacy; Neg_Out = Negative College-Going Outcome Expectations; Pos_Out = Positive College-Going Outcome Expectations; Intent = Strength of College-Going Intentions

In the first-generation model, parent support also directly affected self-efficacy beliefs, but also directly affected negative outcome beliefs. School personnel support directly affected positive outcome beliefs, but not self-efficacy beliefs. Self-efficacy beliefs directly affected both positive and negative outcome beliefs, and both of these directly affected strength of college-going intentions.

Figure 11. New Path Diagram for Non-First-Generation Participants, All Paths Significant at .05



Note. Barriers = Perceived Barriers; Par_Supp = Perceived Parental Support; Sch_Sup = Perceived School Support; Self-Eff = College-Going Self-Efficacy; Neg_Out = Negative College-Going Outcome Expectations; Pos_Out = Positive College-Going Outcome Expectations; Intent = Strength of College-Going Intentions

Finally, for the non-first-generation students, perceived barriers directly affected negative outcome beliefs, which directly affected positive outcome beliefs but not strength of college-going intentions. Parent support directly affected positive outcome beliefs, which directly affected strength of college-going intentions. School personnel support had no affect on any other variables in the model. Lastly, self-efficacy beliefs directly affected both negative and positive outcome beliefs.

Table 33. Fit Statistics for New Path Models - All Participants, First-Generation Students Only, and Non-First-Generation Students Only

| Model | <i>n</i> | χ^2 | <i>df</i> | <i>p</i> | AGFI | RMSEA |
|---------------------------|----------|----------|-----------|----------|------|-------|
| All Participants | 249 | 26.00 | 9 | .00 | .91 | .08 |
| First-Generation Only | 103 | 9.61 | 9 | .38 | .92 | .02 |
| Non-First Generation Only | 146 | 8.56 | 10 | .57 | .95 | .00 |

NOTE: AGFI = Adjusted goodness-of-fit index; RMSEA = Root Mean Square Error of Approximation.

The results of the new path models indicate a good fit for each model. In all three cases, the AGFI is above .9, indicating good fit. The RMSEA for the split models are both below .05, indicating a good fit and the indicator for the full-participant model is .08, suggesting an acceptable model fit.

The strengths of the correlations between variables differed by participant group was similar in some cases and different in others. The effect of perceived barriers on self-efficacy beliefs (a path common to all three models) varied by group, with first-generation students indicating the weakest effect of the three groups. The correlations between the other common paths (self-efficacy to positive outcomes, self-efficacy to strength of intentions, and positive outcomes to strength of intentions) were similar across groups.

CHAPTER V

CONCLUSIONS

This chapter focuses on a discussion of the results, implications, and conclusions from this study. Chapter V is divided into the following sections: summary of the research, similarities and differences between first-generation students and their peers, within-group differences, SCCT path models, implications for future research, implications for counseling, and limitations of the study.

Summary of the Research

The main purposes of this study were to investigate the college-going beliefs of prospective first-generation college students. Specifically, the research questions focused on the constructs of college-going self-efficacy and outcome expectations, perceived barriers and supports to college-going, and how each of these were related to the strength of college-going intentions. SCCT was used as a framework for this study as this theory posits a relationship between each of these variables to explain academic and career development. The instruments used in this study included the College-Going Self-Efficacy Scale (CGSES), the Perception of Educational Barriers – Revised (PEB-R), the Child and Adolescent Social Support Scale (CASSS), the College-Going Outcome Expectations Scale (CGOES), and a demographic survey.

First-Generation Students – Similarities and Differences

The first four research questions in this study focused on the similarities and differences between prospective first-generation college students and their peers. Specifically, mean scores on perceptions of barriers, perceived parental support, perceived school support, college-going self-efficacy, and college-going outcome expectations were examined. In addition, general demographic differences were studied as well.

General Similarities and Differences

First-generation students differed from their peers in several ways. In this sample, the first-generation participants were more likely to be Hispanic/Latino than their peers. In addition, they were much less likely to be in a higher level math course than non-first-generation students. Although most students in the study intended to pursue higher education, first-generation students were much more likely to indicate entering something other than a four-year university than their peers (20.2% vs. 9.3%). All of these demographic differences are similar to other studies of first-generation students (e.g., Bui, 2002; Horn & Nunez, 2000; Nunez & Cuccaro-Alamin, 1998), suggesting that this sample is at least somewhat representative of first-generation students in general.

Generally, first-generation students also were similar to their peers in a few ways. As indicated above, both groups planned to attend college after high school. Most of these students planned to attend a four-year university. Similar results have been found by other researchers studying career aspirations of middle and high school students (e.g., Johnson, 2000; Kelp-Kern, 2000). In addition, both groups of students reported being

interested in professional careers that have high prestige and are financially lucrative. Examples of these types of careers include doctor, professional athlete, lawyer, engineer, and actor/singer. At least in middle school, nearly all students, regardless of parent education level, plan to attend college and desire professional careers.

Barriers and Supports

First-generation students and their peers differed in their perceptions of educational barriers. First-generation students reported a higher number of perceived barriers and specific barrier themes emerged in the types that most concerned them. In addition, females perceived more barriers than males. So, although all first-generation students perceive a number of educational barriers, females may need additional assistance in combating these beliefs.

Whereas non-first-generation students perceived barriers only in financial constraints and school stress, students whose parents were without a college education perceived barriers in a number of areas. Financial concerns were a primary focus for first-generation students, with mean scores indicating even stronger concern than their peers. Although other researchers (Luzzo, 1993) have found that paying for college is a concern for students, this is one of the first studies to identify this concern in students as early as the seventh grade. In addition to finances, family issues, ethnic discrimination, lack of college-educated role models, lack of college-planning guidance, negative educational role models, and lack of preparation and/or desire were found to be perceived barriers to college-going for these young first-generation students. Jackson and Nutini (2002) found some of these same issues in their qualitative work with disadvantaged

middle school students. This study, however, was one of the first to quantitatively examine these specific types of barriers. Clearly, first-generation students perceive a high number of barriers to college-going, and they do so early in their educational careers.

Since Baker (1998) found that general school climate affected academic self-concept, this study broadened the spectrum of school support to all adults in the school to examine a general feeling of support within the school. Both groups of students perceived a similar level of support from school personnel. The results showed a fairly high level of perceived educational support from the adults who worked at their schools. This is a positive theme since other researchers (e.g., Flores & O'Brien, 2002; McWhirter et al., 2000) have found that teacher support influences career and educational planning. The only group that displayed lower perceived support from school personnel was the non-first-generation students of 'Other' ethnicities. It is uncertain why this group perceived significantly less school support.

First-generation students, with the exception of students from the 'Other' ethnicity grouping, reported less parental support for education than their peers. Because parents have been identified as the primary influence on career development (Nauta & Kokaly, 2001; Otto, 2001), this is a major concern. These same students reported lacking role models and guidance for educational planning, so it may be that parents of first-generation students are unable to provide more than passive support for college-going. In essence, while it is probable that parents of first-generation students hope that their children can continue their education, it also is likely that they feel unable or incapable of

providing active support and assistance for this endeavor (cf. Gibbons et al., 2005). The students may then perceive less overall educational support from their parents, which may eventually lead them to be less likely to pursue the activities needed to prepare for and attend college after high school.

Self-Efficacy and Outcome Beliefs

First-generation students in this study reported lower college-going self-efficacy beliefs than their peers. Self-efficacy beliefs have consistently been found to directly affect career and educational intentions (Fouad & Smith, 1996), and interests and goals (Lent et al., 2003; Lopez et al., 1997; Nauta & Epperson, 2003). Therefore, because these young first-generation students already indicate lower self-efficacy beliefs for college-going, this finding is vitally important. In addition to this general finding, male first-generation students reported lower college-going self-efficacy than first-generation females. Since self-efficacy beliefs are so integral to the career and educational development process, this gender difference cannot be overlooked. This result suggests that male first-generation students may have needs different from female first-generation students. First-generation males may be at more risk than females in believing that they cannot do what is needed to attend college and be successful there.

Differences also were found in college-going outcome expectations. First-generation students reported lower positive outcome beliefs related to college-going than did their peers. This indicates that first-generation students believe that going to college may result in less positive results for them than do other students. Since outcome beliefs also have been found to directly affect intentions, interests, and goals (Betz & Voyten,

1997; Kahn, 2001; Lopez et al., 1997), this result is important for considering the career and academic development of these students.

Interestingly, no differences were found by first-generation status for negative outcome expectation beliefs. This indicates that middle school students in general perceive low to moderate negative beliefs about what would happen if they attended college. Nevertheless, all seventh graders may need some assistance in reevaluating their beliefs about college-going in order to combat their negative beliefs, or they may eventually affect educational intentions and goals.

Differences Within First-Generation Students

As reported above, several differences emerged between male and female first-generation students. Males indicated lower college-going self-efficacy beliefs than females, and females perceived more barriers than males. Previous studies also have reported some gender differences, although not always in the direction found in this study. Kraus and Hughey (1999) found that high school males had higher career decision-making self-efficacy than females, while Lopez et al. (1997) found no differences by gender in self-efficacy beliefs. Other researchers have examined differences in barrier perceptions by gender. Several (e.g., Luzzo, 1993; McWhirter, 1997) reported females indicated more barriers than did males, but in at least one study (Rojewski & Hill, 1998) males reported more perceived barriers. In two other studies (Kenny et al., 2003; Lopez et al., 1997), no gender differences in barrier perceptions were found. No studies could be found that examined gender differences in barrier perceptions or self-efficacy beliefs within first-generation students, so the fact that gender differences occurred in these areas

may help explain why there are conflicting results among other studies. It appears that parent education level affects males and females differently in their beliefs systems about barriers to college-going.

In addition to gender differences, it appears that ethnicity also affects these variables as well. Specifically, Hispanic/Latino first-generation students seem to differ from their other first-generation counterparts. They perceived more barriers to college-going and had higher negative outcome beliefs. In addition, female students in this ethnic group reported lower self-efficacy beliefs than Hispanic/Latino males. This indicates a possible negative overall belief system related to college-going. Even though they indicate that they want to attend college and plan to go, they already believe that many things will get in their way and that their experience in college will have at least some negative results. Added to this negative belief system for females in this group are their lower self-efficacy beliefs as well.

The few studies that have included enough Hispanic/Latino participants to test comparisons have found differences as well. McWhirter (1997) found that Mexican-American students perceived more barriers than Caucasian students, and Luzzo and McWhirter (1997) found that ethnic minorities in general reported more barriers to education. Self-efficacy and outcome belief differences by ethnicity have not been studied by most researchers.

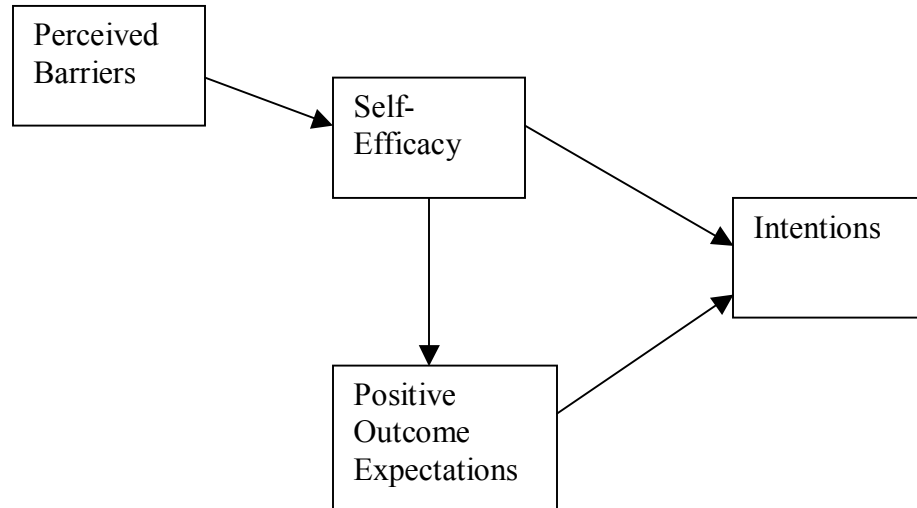
It appears that Hispanic/Latino first-generation students have even more needs than other first-generation students and may require additional interventions to help them plan for and be successful in college. The reasons for these differences have not yet been

explored, but some speculations can be made. The Hispanic/Latino students in this study may have been relatively new to the United States. The high number of parents who did not speak English and therefore required the Spanish-Language version of the informed consent form is suggestive of this idea. Also, it is unknown where these students were in the acculturation process, or how much of a language barrier they faced when completing the surveys. Each of these issues may affect their self-efficacy and outcome expectation beliefs about their ability to attend college and be successful there.

SCCT Models of Educational Development

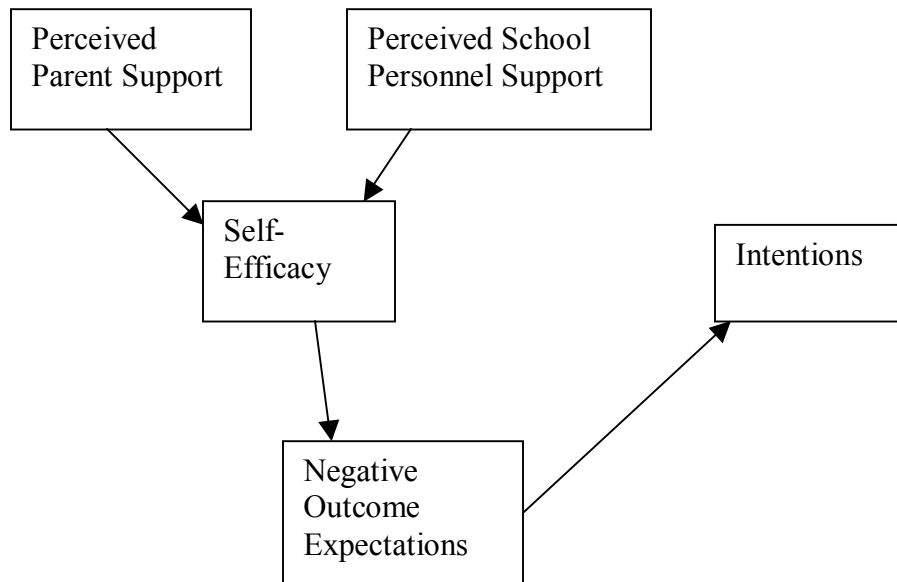
The results of this study provided partial support for the use of SCCT in explaining the educational aspirations of 7th graders. In all cases, barriers directly affected self-efficacy beliefs, self-efficacy directly affected positive outcome expectations and strength of college-going intentions, and positive outcome expectations directly affected strength of college-going intentions. These paths, depicted in Figure 12, match the SCCT model. These results suggest that the general concepts described in SCCT are appropriate for use with both seventh graders in general and first-generation students in particular.

Figure 12. Paths Identified in this Study that Support SCCT



Other parts of the model were not supported by the results of this research. Specifically, the effects of social supports, the effect of self-efficacy beliefs on negative outcome expectations, the effect of negative outcome expectations on intentions, and the effects of barriers on other variables beyond self-efficacy beliefs differed from the original model. These are depicted in Figure 13. In addition, different models explained the relationships between variables for first-generation students versus their peers.

Figure 13. SCCT Paths not Supported by Current Research



Model for First-Generation Students

For first-generation students, it appears that both parent and school personnel support are important variables that affect strength of college-going intentions. Unlike the predicted model, however, it appears that the affect of these supports are not entirely mediated through self-efficacy beliefs. For first-generation students, parent support has a direct relationship with self-efficacy and negative outcome beliefs and school personnel support has a direct relationship only with positive outcome beliefs.

Both of the effects of parental support are important. If parent support has a positive relationship with negative outcome expectations, then it may be that students are receiving mixed messages about college-going from their parents. However, this support of their education does seem to have a positive effect on self-efficacy as well, so at least

some part of that support is positively affecting student belief systems. Although these parents may support education, they may also let their children know that they have doubts about being able to pay for college or that time restrictions due to working may hinder the student's ability to go on to college.

The direct relationship between school personnel support and positive outcome beliefs suggests that school environment can be a powerful influence on college-going expectations. Just as school environment and support has been found to positively influence current school satisfaction (Baker, 1998; Lapan et al., 2003), it appears that it also affects beliefs about future school environments. In other words, feeling supported in school now helps students believe that college will be a positive place as well.

Finally, in the model for first-generation students, there was a direct, negative relationship between negative outcome beliefs and strength of college-going intentions. This result suggests that the stronger students beliefs are that college-going will have negative outcomes, the less they believe in their intentions to continue their education. When this result is combined with the parent support relationship to outcome beliefs, it becomes evident that negative outcome expectations must become a focus of interventions when working with prospective first-generation college students.

Model for Non-First-Generation Students

The model for non-first-generation students differed significantly from the one described above. For *non-firsts*, school personnel support was not significantly related to any other variables. This result suggests that school personnel support is less important for this group of students. It may be that the support these students receive from their

parents is enough for them. In addition, perceived barriers were positively related to negative outcome expectations, suggesting that the more barriers to college-going they perceive, the more negative outcomes associated with college become for them. Also, parent support appears to influence positive outcome beliefs directly rather than being mediated through self-efficacy as predicted. It may be that parents who attended college can better explain what college life is all about, therefore providing their children with enough information to believe that they, too, can get to college and be successful there. Finally, in this model, the effect of negative outcome beliefs on strength of intentions is entirely mediated through positive outcome beliefs. It is possible that, for non-firsts, positive and negative beliefs are more related to each other than for first-generation students. In other words, the negative relationship between negative and positive outcome expectations for these students may together alter strength of college-going intentions. For first-generation students, however, each type of outcome belief had a separate, direct effect on strength of intentions.

Contributions to SCCT Research

Based on the results of the path analyses, several new additions to the research on SCCT warrant attention. First, the use of the PEB-R appears to address the problem of low correlations between perceived barriers and self-efficacy beliefs that has been found in previous research (e.g., Flores & O'Brien, 2002; Lent et al., 2003b). By returning to the qualitative research on barriers, themes emerged that were not being assessed in the original PEB scale. With the addition of the new items, however, the scale now appears

to be a useful way of measuring perceived barriers to furthering one's education. The scale, in essence, is now more sensitive.

Second, no quantitative studies could be found that separated positive and negative outcome expectations. The measurement of both positive and negative outcome beliefs was suggested by Shoffner et al. (2005) based on the results of their focus group research. The slight negative correlation between the means on the negative and positive outcome belief subscales in this study strongly suggested that negative items cannot be reverse-scored. These two belief systems may be related, but they are still separate from one another and should be measured separately. Future research that replicates this finding with other populations is needed to determine if outcome expectations in the SCCT model should, indeed, be separated into two separate variables.

Third, an attempt was made to measure coping efficacy in this study. Other researchers (e.g., Lent et al., 2001, 2003a) have previously suggested that coping efficacy might explain the weak relationship between barriers and self-efficacy. These researchers indicated that strong coping efficacy, or the belief in ability to deal with barriers should they arise, may counter the effects of perceived barriers on self-efficacy beliefs. Based on these studies, the coping efficacy subscale of the PEB was included in this study as well.

Problems arose, however, regarding the measurement of coping efficacy. Changes in the wording (based on pilot study results), oral explanations to large groups of participants, and explanations to individual participants were all provided in an attempt to help explain the instrument. In the end, though, it was clear that many of the

participants failed to grasp the meaning of the coping efficacy scale, so it was not included in the analyses. It may be that coping efficacy is too abstract a concept for middle school students to comprehend. Asking students to envision how difficult it would be to respond to a hypothetical barrier that might occur sometime in the future was not a concept that many of the participants could understand. Future researchers need to be careful when measuring this construct and should take into account the developmental level of their participants.

Fourth, the addition of first-generation status as a background variable seems to be useful. Parent education level clearly has a direct impact on the educational and career aspirations of students, and it will be important to include this measure in the future. Up to now, gender, ethnicity, and SES were the primary background influences included in SCCT research. It is suggested that first-generation status be added when exploring career and educational development because of the strong impact that it has on participants' self-efficacy and outcome beliefs.

Each of these four contributions to the SCCT research is unique and new to the literature. All need to be studied further with different types of participants. These might include inner-city youth, participants outside of the southeast, or participants from ethnic groups not well represented in this study (e.g., Asian or Native-American). Nevertheless, it appears that while the SCCT model adequately explains part of the educational aspiration process, it may not be sensitive enough. Adding barrier themes, separating outcome expectations into positive and negative beliefs, being cautious about measuring

coping efficacy, and adding parent education level as a vital background influence are all ways to help enrich the SCCT model.

Implications for Practice

Based on all of these results, it appears that first-generation students have different needs from non-first-generation students. Practitioners can do a number of things to help prospective first-generation college students better prepare for post-secondary education and be more successful once they arrive. These interventions are specific to first-generation students.

One of the most important interventions would be to start early. Differences between first-generation students and their peers are clearly evident as early as 7th grade, which indicates that interventions need to start no later than middle school. Since we know that middle school students lack connections between their educational goals and their choices in school (Hafner et al., 1990) and they often are interested in careers that they know little about (Johnson, 2000), it is probable that these interventions need to continue throughout high school. Osterreich (2000) recommended offering a range of approaches that were long-term and began no later than the 7th grade in order to maximize the effectiveness of college-preparation programs.

It seems that increasing school personnel support can be a significant intervention as well, since creating a positive and supportive school environment had a direct effect on college-going outcome beliefs for these students. When these results are combined with the perceived barrier results, certain implications for practice become clear. Schools can form teams that train teachers and other school staff to put an emphasis on culture

(Tierney et al., 2003), provide mentoring for first-generation students, and encourage all students to increase the rigor of their academic programs (Warburton et al., 2001). These techniques could help increase perceived school support and indirectly affect perceived barriers, which would then increase the positive outcome beliefs of these students. This, in turn, would increase their belief in the strengths of their intentions to continue their education after high school.

A third intervention must address negative outcome beliefs. Since parent support appears to be related to these negative expectations, parents should be involved in this intervention process. One way to help change these perceptions might be to provide workshops for middle school students and their parents in their native language that explain the realities of college and provide accurate information about college-going (cf. Gibbons et al., 2005).

Another idea would be to provide psychoeducational small groups led by school counselors designed to raise college-going self-efficacy beliefs in the hope that this will ultimately lower negative outcome beliefs and raise positive outcome expectations. Self-efficacy interventions should focus on helping to empower students to believe that they can get to college and be successful. Special attention needs to be given to males, as they seem to have lower perceived self-efficacy than females. Previous studies (Kraus & Hughey, 1999; McWhirter et al., 2000) however, have shown that short-term interventions on self-efficacy do not provide long-lasting results. Therefore, programs must be ongoing, perhaps by focusing on different aspects of self-efficacy during each school year that build on each other. Parents could become involved in these small

groups as well, or they could be in separate support groups designed to enhance their effect on their student's self-efficacy beliefs.

Interventions also could address the perceived barriers of first-generation students. By examining the barrier themes, programs that again provide concrete and accurate information to both students and parents can help reduce these perceived barriers and increase their understanding of services designed to assist students as they transition to college. It may be helpful for students and parents to hear from colleges that have programs specifically for first-generation college students; learning that they are not alone and that colleges want to help them succeed can have a powerful impact. Learning about financial aid programs that provide funds for college-going along with information on the actual cost of school would be helpful as well (cf. Gibbons et al., 2005). Finally, through the aforementioned parent workshops, parents can become empowered to be the positive and helpful role models for educational pursuits that their students report they currently lack.

Finally, it is important to remember that not all first-generation students are alike. Gender and ethnicity differences appear to interact with the constructs of self-efficacy, outcome expectations, supports, and barriers. Counselors must get to know their students and work with them accordingly. Hispanic/Latino students may need additional interventions beyond the ones mentioned above, and males and females may need separate interventions that focus on their specific needs as well.

Two interventions may be important specifically for non-first-generation students. First, it is important to focus on the relationship between parents and their students in

order to keep positive outcome expectations high. Strengthening parental support of educational planning may be key in helping non-firsts achieve their college-going goals. Second, any barriers that seem to be an issue for these students must be addressed. Specifically, programs that provide accurate information on the financial aspects of college and those that help reduce school-related stress may be of particular help for this group. Although they may have fewer intervention needs than do first-generation students, it is probable that they would benefit from many of the same interventions, as increased knowledge about the college-going process is typically helpful to everyone.

Implications for Future Research

In addition to implications for practice, the current study provides clues for future research as well. First, it would be helpful to repeat this study with different students to see if the results are similar. Students from other ethnicities and from different states would be important additions to complement the current sample. As other researchers (e.g., Jackson & Nutini, 2002; Kenny et al., 2003) have suggested, longitudinal research on disadvantaged groups such as first-generation students also is needed. Long-term studies can help determine when college-going intentions change – that is, when students stop believing that they will attend college. Comparisons could be made between first-generation students and their peers over time to determine if differences grew or shrunk throughout high school.

Research to provide additional evidence of validity for the self-efficacy and outcome expectations scales is needed. These two scales appear to be useful measures of college-going constructs and additional studies would help determine the range of their

utility. In addition, since the CGOES is the first quantitative measure to examine positive and negative outcome expectations separately, future studies that examine this construct with different population are needed. The expanded PEB-R needs additional study as well to determine if it is truly more effective than other barrier scales in assessing the likelihood of various barriers in middle and high school students. Specific item analyses would be helpful to evaluate overarching themes in the barrier items.

Future research needs specific to first-generation students are abundant as well. Intervention studies designed to help reduce barriers, raise self-efficacy and outcome expectations, or raise social supports would be helpful in determining effective means of addressing these variables. Studies also are needed that compare first-generation students with each other. As this and other studies have found, not all first-generation students are alike. It would be important to examine additional differences by ethnicity and gender along with studying location differences. For example, rural first-generation students may be different from their urban or suburban peers.

Finally, studies are needed that look at some of the support systems that directly affect first-generation students. For example, studies that focus on the needs, questions, and types of interventions sought by the parents of first-generation students would be helpful. These studies might help identify how best to help parents. In addition, qualitative studies that look at the type of parental support given by parents of first-generation students are needed to determine why this support has a positive correlation with negative outcome expectations in their children. Studies that look at school personnel support would be vital as well. Since first-generation students seem to be

positively influenced by this support, finding what types of support are most beneficial would seem a logical next step.

Limitations

Several limitations in this study are worth noting. First, the participants comprised a convenience sample and only represented students from a single U.S. state. Therefore, caution must be taken in generalizing the results. In addition, the relatively low response rate also may limit generalizability. Second, the surveys were based on self-report, so no information is available from parents, school personnel, or others who may know about the college-going beliefs of middle school students. However, given the powerful influence of self-efficacy beliefs, the perceptions of the students themselves was the primary interest in this study.

In addition, all of the data were based on student perceptions due to the use of the SCCT model. Third, the measurement of coping efficacy was not successful in this study. Since most current SCCT literature includes this construct, the lack of this construct may limit generalizability of the results. Fourth, path analyses by ethnicity and socioeconomic status were not run. Path analyses require a large number of participants for each category, and there were not enough participants of any given ethnic or SES group to allow for this type of analysis to be conducted. Therefore, it is unknown whether path differences between the first-generation group and their peers were influenced by ethnicity or SES status.

Fifth, because the specific nature of this study was to examine the differences in first-generation students from their peers, participating schools were selected based on

specific demographic criteria. These criterion included percentage of free and reduced lunch students, ethnic breakdown of the school, socio-economic status of the community, and location of the school. Even for the pilot study, attention was paid to selecting Scout troops that would have racial and socio-economic diversity to ensure that first-generation students would be part of the sample. This selection process may make it difficult to generalize the results beyond these types of schools. In addition, over-sampling occurred in the main study in order to collect data from enough first-generation students to make adequate comparisons. This created a sample that was not representative of the first-generation population (currently at 27% of students).

Conclusion

The results of this study provide additional information about the college-going beliefs of prospective first-generation students. The college-going beliefs of first-generation students differ from non-first-generation students in a number of ways. Ethnic and gender differences within the first-generation population indicates that not all first-generation students have the same belief systems. SCCT appears to be a useful way of conceptualizing the college-going intentions. The scales used in this study show evidence of reliability and validity for use with middle school students. The proximal influences of barriers and social supports appear to affect the other variables in the SCCT model. Self-efficacy and outcome beliefs directly affect strength of college-going intentions, suggesting that these constructs play a major role in educational and career development. Additional findings provide suggestions for follow-up research on the SCCT model.

This research provides clues on ways that counselors and researchers can assist a needy population. This research has added to the current literature on first-generation student in particular, and to the educational development of middle school students in general. Hopefully, this study has provided researchers and practitioners with next steps toward future work with prospective first-generation college students.

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APPENDIX A

SURVEYS USED IN STUDY

College-Going Self-Efficacy Scale

Please read each of the following questions and answer them as honestly as possible. Fill in the bubble that best describes how sure you feel about each question. There are no right or wrong answers. When answering these questions, remember that college means any type of schooling after high school (community college, four-year university).

| | | | | |
|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 |
| 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 |
| 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 |

How sure are you about being able to do the following:

1. I can find a way to pay for college-----
2. I can get accepted to a college-----
3. I can have family support for going to college-----
4. I can choose a good college-----
5. I can get a scholarship or grant for college-----
6. I can make an educational plan that will prepare me for college-----
7. I can make my family proud with my choices after high school-----
8. I can choose college courses that best fit my interests-----
9. I can pay for college even if my family cannot help me-----
10. I can get good grades in my high school math classes-----
11. I can get good grades in my high school science classes-----
12. I can choose the high school classes needed to get into a good college-----
13. I can know enough about computers to get into college-----
14. I can go to college after high school-----

If you do go to college, how sure are you about being able to do the following:

1. I could pay for each year of college-----
2. I could get A's and B's in college-----
3. I could get my family to support my wish of finishing college-----
4. I could take care of myself at college-----
5. I could fit in at college-----
6. I could get good enough grades to get or keep a scholarship-----
7. I could finish college and receive a college degree-----
8. I could care for my family responsibilities while in college-----
9. I could set my own schedule while in college-----
10. I could make friends at college-----
11. I could get the education I need for my choice of career-----
12. I could get a job after I graduate from college-----
13. I would like being in college-----
14. I could be smart enough to finish college-----
15. I could pick the right things to study at college-----
16. I could do the classwork and homework assignments in college classes-----

| | Not at all Sure | Somewhat Sure | Sure | Very Sure |
|---|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. I can find a way to pay for college----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. I can get accepted to a college----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. I can have family support for going to college----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4. I can choose a good college----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5. I can get a scholarship or grant for college----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 6. I can make an educational plan that will prepare me for college----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 7. I can make my family proud with my choices after high school----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 8. I can choose college courses that best fit my interests----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 9. I can pay for college even if my family cannot help me----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 10. I can get good grades in my high school math classes----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 11. I can get good grades in my high school science classes----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 12. I can choose the high school classes needed to get into a good college----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 13. I can know enough about computers to get into college----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 14. I can go to college after high school----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 1. I could pay for each year of college----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. I could get A's and B's in college----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. I could get my family to support my wish of finishing college----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4. I could take care of myself at college----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5. I could fit in at college----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 6. I could get good enough grades to get or keep a scholarship----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 7. I could finish college and receive a college degree----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 8. I could care for my family responsibilities while in college----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 9. I could set my own schedule while in college----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 10. I could make friends at college----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 11. I could get the education I need for my choice of career----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 12. I could get a job after I graduate from college----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 13. I would like being in college----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 14. I could be smart enough to finish college----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 15. I could pick the right things to study at college----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 16. I could do the classwork and homework assignments in college classes----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

MY PERCEPTIONS OF BARRIERS

Below you will find a list of potential barriers (things that might get in the way) that you might face in going to college/training school after high school. For each potential barrier on the list, please circle the responses that best fit for you. You will circle two responses for each barrier – first, HOW LIKELY is it that this will be a barrier for you, and second, HOW HARD do you think it would be for you to deal with the barrier.

| | HOW LIKELY IS IT TO BE A BARRIER FOR YOU | | | | HOW HARD WOULD IT BE FOR YOU TO DEAL WITH THIS BARRIER | | | |
|---|---|---|------------|---|--|---|-------------------|---|
| | Not at All likely | | Definitely | | Not at All Hard | | Extremely Hard | |
| 1. Not enough money | A | B | C | D | A | B | C | D |
| 2. Not smart enough | A | B | C | D | A | B | C | D |
| 3. Concerned about feeling safe in my school | A | B | C | D | A | B | C | D |
| 4. Not confident enough | A | B | C | D | A | B | C | D |
| 5. Friends don't support my plans | A | B | C | D | A | B | C | D |
| 6. Being treated differently because of my gender (being male/female) | A | B | C | D | A | B | C | D |
| 7. Having to work while going to school | A | B | C | D | A | B | C | D |
| 8. Pressure to not pay attention in school | A | B | C | D | A | B | C | D |
| 9. Not fitting in at new school or program | A | B | C | D | A | B | C | D |
| 10. Takes a long time to finish the training or schooling | A | B | C | D | A | B | C | D |
| 11. Being married | A | B | C | D | A | B | C | D |
| 12. Not being like the other kids in college | A | B | C | D | A | B | C | D |
| 13. Teachers don't support my plans | A | B | C | D | A | B | C | D |

| | HOW LIKELY IS IT TO BE A BARRIER FOR YOU | | | | HOW HARD WOULD IT BE FOR YOU TO DEAL WITH THIS BARRIER | | | |
|--|---|---|------------|---|--|---|-------------------|---|
| | Not at All likely | | Definitely | | Not at All Hard | | Extremely Hard | |
| | A | B | C | D | A | B | C | D |
| 14. People believing that kids of my ethnicity or race don't do well in school | | | | | | | | |
| 15. Not being interested in classes/training | | | | | | | | |
| 16. Not being prepared enough | | | | | | | | |
| 17. Family responsibilities | | | | | | | | |
| 18. Getting in trouble with the law | | | | | | | | |
| 19. No one to help me understand planning for school | | | | | | | | |
| 20. Lack of motivation | | | | | | | | |
| 21. Not talented enough | | | | | | | | |
| 22. Not feeling safe in my neighborhood | | | | | | | | |
| 23. Pressure from boy/girlfriend | | | | | | | | |
| 24. Sex discrimination | | | | | | | | |
| 25. Not taking the right courses in high school | | | | | | | | |
| 26. Racial/ethnic discrimination | | | | | | | | |
| 27. Pregnancy/having children | | | | | | | | |
| 28. Not having enough people of my ethnicity or race at college | | | | | | | | |
| 29. Not understanding what college life is all about | | | | | | | | |
| 30. Lack of study skills | | | | | | | | |

| | HOW LIKELY IS IT TO BE A BARRIER FOR YOU | | | | HOW HARD WOULD IT BE FOR YOU TO DEAL WITH THIS BARRIER | | | |
|---|---|---|------------|---|--|---|-------------------|---|
| | Not at All likely | | Definitely | | Not at All Hard | | Extremely Hard | |
| 31. Not knowing what kind of school or training I want | A | B | C | D | A | B | C | D |
| 32. None of my friends are doing what I'm doing | A | B | C | D | A | B | C | D |
| 33. No one in my family has gone to college | A | B | C | D | A | B | C | D |
| 34. Feeling guilty about going to college | A | B | C | D | A | B | C | D |
| 35. Not being able to get into the college or training program I want | A | B | C | D | A | B | C | D |
| 36. Pressure to get a job rather than stay in school | A | B | C | D | A | B | C | D |
| 37. Parents don't support my plans | A | B | C | D | A | B | C | D |
| 38. School too stressful | A | B | C | D | A | B | C | D |
| 39. Not wanting to move away | A | B | C | D | A | B | C | D |
| 40. Parent don't have knowledge about college | A | B | C | D | A | B | C | D |
| 41. School/program very expensive | A | B | C | D | A | B | C | D |
| 42. The schooling/training I want not available here | A | B | C | D | A | B | C | D |
| 43. People in my neighborhood don't go to college | A | B | C | D | A | B | C | D |
| 44. Others don't think I can do it | A | B | C | D | A | B | C | D |
| 45. Being treated differently because of my ethnicity or race | A | B | C | D | A | B | C | D |

College-Going Outcome Expectations Scale

Please read each of the following statements and answer them as honestly as possible. Fill in the bubble that best describes how sure you feel about each question. There are no right or wrong answers. Be sure to answer every question. Be sure to read each statement carefully.

If I go to college, I believe:

| If I go to college, I believe: | | Don't Believe At All | Somewhat Believe | Believe | Definitely Believe |
|---|--|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. I will be able to pay for college----- | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. I will impress my family----- | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. It will be hard for me to pass my classes----- | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4. I will have better opportunities in life----- | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5. I will have the same friends as I do now----- | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 6. I will contribute more to society as a result of going to college----- | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 7. I will not be able to take care of myself----- | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 8. My friends might not like me anymore----- | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 9. I will feel different from my family----- | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 10. I will feel confused in my classes----- | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 11. I will make new friends----- | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 12. I will make other people's lives better because of my college experiences--- | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 13. I will not have enough money for things like clothes, movies, and other activities- | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 14. I will gain respect from others----- | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| If I go to college, I believe: | | | | | |
| 5. I will be proud of myself----- | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 6. I will be prepared academically----- | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 7. My parents will support my decision----- | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 8. My family might not understand my choice to attend college----- | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 9. I will be successful in college----- | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 10. My friends would be jealous of me----- | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 11. I will feel different from my friends----- | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 12. My parents will approve of me----- | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 13. My other responsibilities will make it hard for me to do well in school----- | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 14. I will not fit in with my friends at home----- | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 15. My family will not approve of me----- | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 16. My friends will be happy for me----- | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 17. I will make a lot of money after I graduate----- | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 18. I will be stressed out a lot----- | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 1 | 1 | 1 | 1 | 1 |
| 2 | 2 | 2 | 2 | 2 | 2 |
| 3 | 3 | 3 | 3 | 3 | 3 |
| 4 | 4 | 4 | 4 | 4 | 4 |
| 5 | 5 | 5 | 5 | 5 | 5 |

8. What are your educational plans (check all that apply)?

Drop out from High School ☐

Graduate High School ☐

Enter Military ☐

Enter Community College (2-yr) ☐

Enter Trade School (like Cosmetology) ☐

Enter Four-Year University ☐

9. What is your **highest** educational goal – how far do you want to go in school:

Enter High School ☐

Graduate from High School ☐

Enter Trade School (Like Cosmetology
or Truckdriving) ☐

Graduate from Trade School ☐

Enter Community College (2 yr.) ☐

Graduate from Community College ☐

Enter Four-Year University ☐

Graduate from Four-Year University ☐

Enter Graduate School (like law school, medical school, getting a Master's or
PhD degree) ☐

Graduate from Graduate School ☐

Other ☐

10. Who has been the most supportive of your educational plans? List up to 3 people. DO NOT WRITE THE PERSON'S NAME, JUST THEIR RELATIONSHIP TO YOU. For example – teacher, dad, cousin. Put if each is male or female – male teacher, female cousin.

11. Who has not been supportive of your educational plans? List up to 3 people. DO NOT WRITE THE PERSON'S NAME, JUST THEIR RELATIONSHIP TO YOU. For

example – teacher, dad, cousin. Put if each is male or female – male teacher, female cousin.

12. In your opinion, how likely is it that you actually will go to college after high school?

| | | | | | | | | | | | | |
|-------------------|---|---|-----------------|---|---|--------|---|---|-------------|----|--|----------|
| Not at all likely | | | Somewhat Likely | | | Likely | | | Very Likely | | | Positive |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |

13. In your opinion, how likely is it that you actually will graduate from college within five years after high school?

| | | | | | | | | | | | | |
|-------------------|---|---|-----------------|---|---|--------|---|---|-------------|----|--|----------|
| Not at all likely | | | Somewhat Likely | | | Likely | | | Very Likely | | | Positive |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |

14. Have you ever visited (been to) a college campus? Yes No

15. Besides getting good grades, what are the three most important things people need to do in order to get into college?

16. What happens at college (what do people do in college)?

17. Besides getting good grades, what are the three most important things people need to do in order to graduate from college?

APPENDIX B

Parental Consent Form

THE UNIVERSITY OF NORTH CAROLINA

GREENSBORO

CONSENT TO ACT AS A HUMAN PARTICIPANT: LONG FORM

Project Title: College-Going Beliefs of Prospective First-Generation College Students:
Perceived Barriers, Social Supports, Self-Efficacy, and Outcome Expectations

Project Director: Melinda M. Gibbons and L. DiAnne Borders

Participant's Name: _____

Date of Consent: _____

DESCRIPTION AND EXPLANATION OF PROCEDURES:

The goal of this study is to examine the college-going beliefs of middle school students. Participants will be surveyed about their beliefs related to things that might make it difficult to attend and complete college, people who support their choice to attend college, feelings about their ability to go to college, and their beliefs about what would happen if they did go to college. For this study, the word “college” refers to any type of schooling after high school that could lead to a degree (like a two-year community college or a four-year university). Participants in this study will complete five (5) short surveys about these college-going beliefs. The surveys will take approximately 30-45 minutes to complete. Participants will be given a small gift for their participation in the study.

RISKS AND DISCOMFORTS:

The risks for participating in this study are minimal. It is possible, as with any survey, that some of the questions may raise concerns in the participant. If any discomfort is experienced, please remember that this is a voluntary process and the participant may stop taking the survey at any time.

POTENTIAL BENEFITS:

This study will provide needed information about the college-going beliefs of middle school students. This information may help educators, parents, and others to better talk with students about college-going. In addition, the results of this study may help create programs designed to address any barriers to attending college after high school.

CONSENT:

By signing this consent form, you agree that you understand the procedures and any risks and benefits involved in this research. You are free to refuse to participate or to withdraw your consent to participate in this research at any time without penalty or prejudice; your participation is entirely voluntary. Your privacy will be protected because you will not be identified by name as a participant in this project. All surveys and consent forms will be maintained in a locked file cabinet only accessible by the primary researcher. Data, including consent forms, surveys, and computer files, will be kept for a minimum of three years, after which it will be destroyed.

The research and this consent form have been approved by the University of North Carolina at Greensboro Institutional Review Board, which insures that research involving people follows federal regulations. Questions regarding your rights as a participant in this project can be answered by calling Mr. Eric Allen at (336) 256-1482. Questions regarding the research itself will be answered by Melinda M. Gibbons by calling (336) 887-6908. Any new information that develops during the project will be provided to you if the information might affect your willingness to continue participation in the project.

By signing this form, you are agreeing to participate in the project described to you by Melinda M. Gibbons.

Participant's Signature*

Date

*If participant is a minor or for some other reason unable to sign, complete the following:

Participant is _____ years old.

Custodial Parent(s)/Guardian Signature(s)

Custodial Parent(s)/Guardian Signature

APPENDIX C

Student Assent Form

We are doing a study about the college-going beliefs of middle school students. We hope to learn more about how middle school students feel about going to college after graduating from high school. Hopefully, your answers will help us develop school programs that will provide more information about continuing your education.

If you agree to participate in this study, you would complete five short surveys that ask about you, your beliefs about what would make it difficult to attend college, who supports your decision to attend college, your beliefs in your ability to go to college and be successful there, and what you believe would happen if you actually did go on to school. It is very important to remember that, for these questions, the word “college” means any type of school after high school. This might mean a community college like GTCC or RCC, or it could mean a four-year university like UNC-Chapel Hill or UNC-Greensboro.

You can ask questions at any time that you might have about this study. Also, if you decide at any time to stop answering questions, you are free to do so. Remember that there are no right or wrong answers and that we are very interested in what you think.

Signing this paper means that you have read this and want to be in the study. If you don't want to be in the study, don't sign this paper. This is your choice and the decision is yours. Thank you for thinking about being a part of this study.

Signature of Participant (your name): _____ Date: _____

Signature of Investigator: _____ Date: _____

APPENDIX D

ID#: _____

Parent Survey

Directions: Please indicate the best response for each question. PLEASE CHECK ONLY ONE BOX EACH FOR QUESTIONS 1-4. Do not put your name or your student's name anywhere on this survey. This will help make sure your answers are anonymous. Please return this survey with the parental consent form to your student's teacher. Thank you for your participation.

1. Mother's education level – how far the mother of your student went in school:

Less Than 7th Grade ☐ Less than 9th grade ☐ Some High School ☐
 High School Graduate ☐ Some College (No Degree) ☐ Community College Graduate ☐
 Four-Year College Graduate ☐ Graduate School ☐ Don't Know ☐

2. Father's education level – how far the father of your student went in school:

Less Than 7th Grade ☐ Less than 9th grade ☐ Some High School ☐
 High School Graduate ☐ Some College (No Degree) ☐ Community College Graduate ☐
 Four-Year College Graduate ☐ Graduate School ☐ Don't Know ☐

3. If your child has a stepmother, please check how far the stepmother went in school:

Less Than 7th Grade ☐ Less than 9th grade ☐ Some High School ☐
 High School Graduate ☐ Some College (No Degree) ☐ Community College Graduate ☐
 Four-Year College Graduate ☐ Graduate School ☐ Don't Know ☐ No Stepmother ☐

4. If your child has a stepfather, please check how far the stepfather went in school:

Less Than 7th Grade ☐

Less than 9th grade ☐

Some High School ☐

High School Graduate ☐
Graduate ☐

Some College (No Degree) ☐

Community College

Four-Year College Graduate ☐
Stepfather ☐

Graduate School ☐

Don't Know ☐

No

5. Mother's current career or job: _____

6. Father's current career or job: _____

Thank you for your help!!!

APPENDIX E

Explanation of Survey (to be read when consent forms are distributed)

The goal of this study is to examine the college-going beliefs of middle school students. You will be surveyed about your beliefs related to things that might make it difficult to attend and complete college, people who support your choice to attend college, feelings about your ability to go to college, and your beliefs about what would happen if you did go to college. I am really interested in what you believe about college. It does not matter what your school grades are or whether you want to go to college after high school. I want everyone's opinions and thoughts.

For this study, the word "college" refers to any type of schooling after high school that could lead to a degree. This might mean a two-year community college or a four-year university. The surveys will take approximately 30-45 minutes to complete. You will be given a small gift for participating in the study.

Your answers will be strictly confidential and anonymous. No names are on the survey, and the permission forms are kept separately from the surveys. The risks for participating in this study are minimal. Your answers will help teachers and school counselors better talk with students about college-going. In addition, the results of this study may help create programs designed to address your specific needs and questions about continuing your education.

If you choose to participate in this survey, you will need to take the permission slip and parent survey home to your family. Have a parent or guardian sign the paper and have them complete the parent survey. Then, return both forms to the school by Wednesday. I will be back on that date to give out the surveys to your class. We will complete the surveys during class time and you will receive your gift for participating at that time as well.

Thank you very much for considering participating in this study. Your participation will be very much appreciated.

APPENDIX F

Participant Instructions

Oral Presentation to be read on day of data collection.

Thank you for agreeing to participate in this study. Please remember that you are not required to participate and may stop participating at any time. For those of you who do agree to participate, your help is truly appreciated. The purpose of this study is to examine the college-going beliefs of middle school students. You will complete a survey that ask about you, your beliefs about what would make it difficult to attend college, who supports your decision to attend college, your beliefs in your ability to go to college and be successful there, and what you believe would happen if you actually did go on to school. It is very important to remember that, for these questions, the word “college” means any type of school after high school. This might mean a community college like GTCC or RCC, or it could mean a four-year university like UNC-Chapel Hill or UNC-Greensboro.

It also is very important that you answer every question on the surveys. Try not to skip any questions. Some of the questions ask you for two answers – for these, you will see two response columns. Be sure to answer both columns. Remember that there are no right or wrong answers and that we are very interested in what you think. If you become confused about one of the questions, feel free to ask me for help. Also, please do not put your name or anyone else’s name anywhere on the survey. This will help me make sure that your answers are anonymous. Your responses will help you and others, like school counselors, teachers, and parents, know how to help middle schoolers better prepare for attending college after high school.

Again, thank you for your help with this study. Are there any questions at this time?

APPENDIX G
Supplemental Form

Dear Parent/Guardian,

As part of this study on college-going beliefs, it is hoped that follow-up data may be collected at a later time. This would involve being contacted about participating in the follow-up study, agreeing to participate if you would like, and then completing a second set of surveys about college-going beliefs. This follow-up may take place several months up to 5 years from now.

In addition, you may complete this form if you would like to request a summary of the results of this study.

Thank you,

Melinda M. Gibbons

If you would like a summary of the results or would be willing to be contacted for a follow-up study, please place a check mark in the relevant spaces below.

_____ Yes, I would be willing to be contacted about a follow-up study.

_____ Yes, I would like a summary of the research results.

PLEASE PRINT CLEARLY

Student Name: _____

Parent/Guardian: _____

Address: _____

Current School: _____

E-Mail Address: _____

_____ No, I would not like to be contacted (DO NOT FILL IN NAME/ADDRESS)